THE LANCET.

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An Address
ON
MODERN PROBLEMS RELATING TO THE ANTIQUITY OF MAN.

Delivered before the British Association for the Advancement of Science at Dundee on Sept. 9th,

BY ARTHUR KEITH, M.D. ABERD., F.R.C.S. ENG.,

HUNTERIAN PROFESSOR, ROYAL COLLEGE OF SURGEONS OF ENGLAND.

GENTLEMEN,—On my book-shelves there is placed a series of odd volumes containing past reports of this association which fortune sent my way many years ago on a Whitechapel bookstall. Among them there is one volume I prize—that which contains the history of the meeting at Aberdeen in 1859.

AN EARLY PHASE.

In that volume you will find an early phase of the subject of my discourse for this evening—the antiquity of man. Sir Charles Lyell presided over the section of geology; in his opening address he announced that "a work will very shortly appear by Mr. Charles Darwin—the result of twenty years' observation and experiment," and that the evidence which had accumulated in recent years "made it probable that man was old enough to have coexisted at least with the Siberian mammoth." From other statements made in his address it is clear that Lyell was then convinced that man's appearance on earth was infinitely older than the limits fixed by Biblical record. I do not suppose I have a single listener who heard that address in Aberdeen 53 years ago, but even those who are not yet old will concede that the new doctrine, even as preached by Sir Charles Lyell, was not likely to be acceptable to the general membership of the geological section in the year 1859. You will find an exact record of what happened at the meeting—not in the official report of the year, but in the letters of Mr. William Pengelly, the explorer of Kent's Cavern. Orthodoxy was represented at the meeting by the Rev. Dr. Anderson, who, in Mr. Pengelly's words, "attempted to castigate Lyell for his opening address." There was a considerable amount of orthodoxy in the room, and Dr. Anderson got a very undue share of applause. The doctrine which Lyell and his companions championed in the face of public opprobrium in 1859 is the accepted and orthodox opinion of the vast majority of thoughtful people in the year 1912.

ORTHODOX VIEWS ON THE ANTIQUITY OF MAN.

That splendid movement of the nineteenth century which knocked the shackles of tradition from the problem of man's origin was led by men of courage, conviction, and sound judgment. It was a progressive and victorious movement they initiated, but in every movement of that kind there comes a time when those who cleared the way turn circumspect, cautious, and more critical than constructive. Opinion tends to become fixed and conventionalised, and then a new heterodoxy raises its head. That is the phase which we, who make a special study of the facts relating to man's origin, seem to have reached now. I cannot cite a more stalwart or distinguished representative of the orthodox opinion of to-day than Professor Boyd Dawkins, of Manchester. In his Huxley lecture of 1910 he gives very clearly his opinions on the antiquity of man—ripe convictions which are founded on a lifetime of active investigation and study. In his opinion the history of man does not extend beyond the Pleistocene period—the phase of the earth's history which immediately precedes the one in which we live. He accepts the fossil man of Java—Pithecanthropus—a being with a brain a little more than half the size of a modern man's, as representative of mankind at the beginning of the Pleistocene; before the end of that period men of the modern type appeared. In Professor Boyd Dawkins's opinion, then, man was evolved during the Pleistocene period, and therefore, from a geologist's point of view, is a recent addition to the earth's fauna. If we ask how long ago it is since man appeared Professor Boyd Dawkins replies: "It cannot be measured in years—only by the sequence of geological events and by the changes in animal life." Yet we are certain that years came cycling round in the Pleistocene period just as they do now, and that every cycle wrought some degree of change on the face of the earth and on the form of living things—a degree of change which may be imperceptible in the period of a man's life, and yet cumulative and apparent in the course of time. Men who have studied the transformations effected during the Pleistocene period have formed varying estimates of its duration, but we may safely adopt as a moderate figure the 400,000 years given by Professor Sollas at a meeting of this Association in 1900. We may accept, then, as the orthodox opinion of to-day that the dawn of the very earliest form of humanity lies 400,000 years behind us; in that space of time man as we know him now was evolved from a crude, almost prehuman form.

HETERODOX VIEWS.

For a representative of modern heterodoxy—as far as relates to the antiquity of man—we cannot do better than visit the Royal Natural History Museum in Brussels and follow the guidance of M. Rutot, who has devoted himself to the study of the stone implements of ancient man and of recent geological formations. One civilisation succeeded another in Pleistocene as in historical times. You will admit, when you examine the handiwork of the men of the Magdalenian age—at the close of the Pleistocene—that our ancestors were then artistic and skilled workmen. As we pass backwards in time from the Magdalenian to the Solutrean, and from the Solutrean to the Mousterian, Mousterian to Acheulean, and Acheulean to the Chellean—thus passing well beyond the mid-point of the Pleistocene—although the handiwork of man changes in form and in design, it does not lose in skill of execution; those flints of the remote Chellean period assure us that man had then a capable brain and a skilled hand. When, however, M. Rutot proceeds to show us the implements which were fashioned by men in the earlier parts of the Pleistocene, it is very probable that our orthodox companions will pull out their watches and find they have pressing engagements elsewhere. Human workmanship becomes cruder as we approach the commencement of the Pleistocene. The stones which have been wrought by man's hand (eoliths) become then more difficult to distinguish from those which have been shaped by natural forces. M. Rutot, however, is convinced that he has traced man, by means of his eolithic culture, not only to the commencement of the Pleistocene, but into and through the two long geological periods which preceded the Pleistocene—the Pliocene and Miocene—and even well into the formations of the still older period, the Oligocene. In M. Rutot's opinion the origin of mankind must be assigned to a time as early as the Oligocene period. Professor Sollas has made a provisional estimate of 900,000 years for the Pliocene and 1,800,000 for the Miocene. On this crude estimate the heterodox opinion as to the antiquity of man must be placed at over 3,000,000 years. It is only just to M. Rutot to state that he would by no means agree to the estimates given by Professor Sollas. In his opinion the duration of the Pleistocene period was not more than 139,000 years.

The modern heterodox movement, which I have sought to bring before you in the person of M. Rutot, had as its pioneer the late Professor Prestwich—a geologist whose long experience and great knowledge were tempered with a sound and conservative judgment. In 1859 he found flints on the uplands of Kent, between the Thames and the Weald, which he recognised as certainly the handiwork of man. Thousands of these eoliths have been collected by Mr. Benjamin Harrison. The deposits in which these eoliths are found were assigned by Professor Prestwich to a Pliocene date. Fifty years ago Sir Charles Lyell expressed the opinion that "signs of man's existence" would be found in the Cromer beds of East Anglia, which mark the commencement of the Pleistocene period in England. Eoliths have been found not only in the Cromer beds, but also in the Pliocene formations of that district—in the Norwich crags by Mr. Clarke, and under the Red Crag by my friend Mr. Reid Moir. Thus in England, heterodox opinion traces man to the commencement of the Pliocene period. I need only add that eoliths, as evidence of man's existence, are rejected by many whose opinion is entitled to our respect. The usually accepted opinion, then, is that man makes his appearance in a definitely human form about the commencement of the

Pleistocene period; there are also those who refer his evolution to a much earlier period of geological history.

EVOLUTION OF HUMAN RACES A SLOW PROCESS.

One thing is certain, whatever period is adopted, the time must be long enough to allow mankind to be distributed and differentiated as we now see it in the world of to-day. Modern human races, white and yellow, red, black or brown, although so different on the surface, are yet so similar in their structure and constitution that we must suppose all of them to have arisen from a common stock. Let us look at the problem in a concrete form. I will take as opposite and contrasted types of modern humanity the fair-haired, white-skinned, round-headed European and the woolly-haired, black-skinned negro of Central Africa and set them side by side and study them from a purely zoological point of view. We must admit that both are highly specialised types; neither represents the ancestral form. Now, in seeking for the ancestral form of our breeds of dogs, of horses, or of cattle, we select one of a generalised and ancient type—such as we conceive might have been modified to produce modern breeds. We must apply the same system to human races. If we search the present world for the type of man who is most likely to serve as a common ancestor for both negro and European, we find the nearest approach to the object of our search in the aboriginal Australian. He is an ancient and generalised type of humanity; he is not the direct ancestor of either negro or European, but he has apparently retained to a greater degree than any other living race the characters of that common stock from which both European and negro arose. If, then, we accept the Australian native as the nearest approach to the common ancestor of modern mankind—and it must be admitted that it is not a low form of man we are postulating as a common ancestor—can we form any conception of the length of time which would be required to produce the African and the European from this common stock? What do we know of the rate at which mankind evolves? There is the classical instance of Egypt. During his residence in that country Professor Elliot Smith and his colleagues—Dr. Wood Jones and Dr. Derry—had opportunities of examining the remains of Egyptians belonging to every period—from pre-dynastic times to the present day. They had thus facilities for studying the evolution of a people over a period of at least 6000 years—probably longer. They found evidence of an infiltration of foreign blood both from the North and from the South; they noted minor alterations in the configuration of the head and in the state of the teeth and jaws, but they could not say that the men at the end of that period were in any respect a higher or more specialised type than the inhabitants of the Nile Valley at the beginning of that period. There is no need to go beyond our own country to find evidence that the evolution of man proceeds at a slow rate. We have now material enough to form a fairly accurate conception of the physical condition of the people who lived in Britain these 4000 years past. Were the prehistoric Britons to come amongst us now, dressed in our modern garb, they would pass unnoticed as fellow citizens. The neolithic men of France, Switzerland, and Germany were not in any wise a lower race than their successors of to-day. When we pass to examine human remains belonging to more remote periods we are confirmed in our belief that the evolution of human races is a slow process. In this country there have been found at Galley Hill, at Bury St. Edmunds, and at Ipswich human remains which belong at least to the middle part of the Pleistocene period. These remains indicate a kind of man somewhat different from ourselves but yet of the same type. In size of brain and in complete adaptation to an upright posture they cannot be described as less highly evolved than we are. Such evidence as we have, then, leads us to believe that the evolution of a new and distinct variety of mankind requires an extremely long period of time.

If we again ask, How long will it take to evolve the African on the one hand and the European on the other from a common stock?—Australoid we suppose in form—it is very apparent, on our present knowledge, we must make a very considerable allowance of time. My own opinion is that the whole length of the Pleistocene—a period we shall say of 400,000 years—is not more than sufficient. I am thus postulating, in order to explain the differentiation and distribution of modern races, that mankind, at the beginning of the Pleistocene period, had reached a physical condition which has its best modern representation in the aborigines of Australia.

Is it not possible, however, that the evolution of man's body may not be a story of slow, continuous, almost imperceptible change, but one of alternate spurt and quiescence? The human body is notoriously the subject of sport, of defects and malformations. Many of you will recall the book which Professor Bateson published 18 years ago entitled, "Material for the Study of Variation." The work contained many facts which seemed to indicate that the animal body was subject to violent structural changes, and that a new form of being might be produced almost at a bound. We often see men in whom there is an extra vertebra in the loins, an additional rib, or a supernumerary digit, but we now recognise that these marked structural changes are merely the extreme manifestations of a normal degree of variation of which every man's body is the subject. The bodies of men and anthropoids are notoriously liable to anatomical variation, and we are justified for that reason in regarding their bodies as particularly plastic material in the hands of evolution. When, however, we come to examine the anatomical differences which separate one race of men from another, we see that racial characters comprise, not those marked variations which so frequently are seen by the students of human anatomy, but a multitude of minor structural features such as might slowly accumulate in the course of the differentiation of one race from another. When one comes to realise the extremely complex structure and finally adjusted nature of the human brain, it becomes very apparent that any addition to the most essential structure of the human body must be the result of an extremely slow process of growth. Only one line of evidence shakes our belief in the slow rate of human evolution, and that is the study of certain diseases of growth to which man is liable. We have come to realise in recent years that we are, as regards face, figure, stature, and nature, largely what our internal glands and secretions have made us. Growth itself is definitely regulated by means of substances set free by certain glands of the body. We are absolutely certain that a marked disturbance of these glands will, in the course of a few years, definitely transfigure the individual to which they belong. Nature seems to have at her command a means for executing rapid advances, but when we survey what we know of man's past history and mark the changes he is subject to in the present, we see no sign of her having resorted to such a means.

EVIDENCE AFFORDED BY FOSSIL FORMS OF ANTHROPOIDS.

There is another route by which we may approach the problem of man's antiquity. Man does not stand alone—he has distant and rather despised relations—the great anthropoid apes. Although the structural hiatus between him and them is wide, yet when we compare the two types we see that there is a multitude of resemblances, so intimate and so peculiar that we cannot explain them except by supposing that man and the great anthropoids had a common ancestor at one stage of the earth's history. The great anthropoids have also a distant and primitive living relative—the gibbon. The gibbon in turn, while foreshadowing in his body the structural peculiarities of his more august relatives, finds his cousins by descent in more lowly forms still—the monkeys of the old world and the monkeys of the new. Of these two groups the monkeys of the new world are the nearest to the original stock which gave rise to the higher primates. It was through such a lineage that man rose to reach his present estate. If, then, we are to ascertain the approximate date, or, to put it in other words, the possible date at which man appeared, we must first search for the earliest traces of the basal form of the higher primates which lead towards the human line. The earliest traces we have discovered as yet were described by Dr. Max Schlosser only two years ago. In the very oldest Oligocene formation of the Fayoum, Egypt, the teeth and jaws of three primates were discovered. Two of these are allied to the South American apes, the other is a forerunner of the gibbons. These Fayoum fossils are of the highest importance to the solution of our problem. Their discovery assures us that at such an early date in the evolution of mammals the South American apes

and the pro-gibbons were already in existence. They are highly evolved forms, and it is not unlikely that they appeared at a much earlier date. In European strata of the period following the Oligocene—the Miocene—many teeth and jaws of a form of gibbon, which differ only in slight and trivial details from the teeth of living gibbons, have been discovered during the past 50 years. Here, then, we have the assurance that an animal which springs closely from the stock giving rise to man has come down to us with but little change through the leagues of time marked by the Miocene, Pliocene, and Pleistocene formations. By the middle of the Miocene we know the great anthropoids were in existence; it is most unlikely that the traces we have discovered marked their first appearance. With the evolution of the great anthropoids the appearance of a human ancestry as a separate stock is possible. From every point of view it is most probable that the human stock became differentiated at the same time as the great anthropoids. On the evidence afforded by our very imperfect knowledge of fossil forms of apes we are justified in assuming that a very primitive form of man may have come into existence during the Miocene period; at the very latest during the early part of the Pliocene. Thus, when we pursue the question of man's antiquity by studying the forms of primates contained in the Tertiary strata, we find reason to extend the possible date of his origin at least a geological epoch beyond what is allowed by the strictly orthodox. We are unable, however, to find evidence in support of the more extravagant claims of the ultra-heterodox represented by M. Rutot.

History of Modern Man.

There is still another and a very important line of evidence bearing on the antiquity of man. We have, in the most cursory manner, followed the evolution of various ancestral forms of ape and anthropoid from the past towards the present; I propose now to follow the history of man's evolution, so far as we yet know it, from the present into the geological past. We are all evolutionists nowadays, and it is but natural that every one of us should expect man to become more anthropoid and more brutal the further we trace him into the past. What have we found? At the close of the Pleistocene period, which even orthodox and conservative geologists admit to have come to an end some 15,000 years ago, the men of Europe in stature and in size of brain were at least our equals. In tooth, limb, and bone they were more robust. When, however, we turn our eyes to France, and pass backwards in the Pleistocene to the milder epoch marked by the last or fourth of the cold cycles which subdivided that period, modern man disappears; his place is taken by a human being of an altogether different kind—a human race or species to which the name of Neanderthal has been given by international consent. During the last six years, thanks to the enthusiasm, industry, and genius of French anthropologists, the remains of four individuals of this race have been unearthed. The strata in which these remains were found contain stone implements of the type known as Mousterian, and of animals belonging to a cold climate. Neanderthal man appears suddenly in this later part of the Pleistocene, and as suddenly disappears, to be replaced by modern man. It is impossible to conceive that, just at the close of the Pleistocene period, Neanderthal man was suddenly converted into modern man. Think for a minute of the interpretation you would give of the Australian strata that are being laid down now. The older deposits contain the remains of aborigines; the newer Europeans. You do not suppose that the aborigines are suddenly transformed to European. You must apply the same interpretation to the human remains found in the later Pleistocene. There was a supersession, not a transformation, of races. We must infer, then, that at the end of the Pleistocene period there were two distinct races of mankind—Neanderthal and modern. That is a fact which our French colleagues seem to grasp with difficulty.

To follow the history of modern man into the past we shall return to England. It is a mystery why Neanderthal remains have not been discovered in England; they ought to be found, and a rumour is now current that they have been found. The oldest remains so far unearthed in England all belong to the modern type of man. They take us a long way further into the Pleistocene than the era of Neanderthal man. The skull fragment, known as the Bury St. Edmunds, was found in strata containing Acheulean flints and remains of the mammoth; the 90 foot terrace of the Thames, in which the Galley Hill man was found, contains flints of the Chellean type. The Acheulean and Chellean flint civilisations are attributed by Professor Boule—a most reliable authority—to the long temperate interval which lies between the two last of the glacial cycles of the Pleistocene, or, if we accept the evidence of Professor Penck, between the second and third cycles. If Mr. Reid Moir and I are right in regarding the human remains lately found at Ipswich as resting under a bed of undisturbed chalky boulder-clay—it is right to say that our inferences are contested—then we have carried the history of modern man a step still further back in the Pleistocene period, for the chalky boulder-clay is the product of the great cold cycle which preceded the Chellean industry. So far as the evidence in England goes it indicates the existence of a modern type of man at least as far back as the middle of the Pleistocene period.

All we know of man in Europe near the beginning of the Pleistocene is the famous lower jaw found near Heidelberg in 1907. A complete lower jaw with its full complement of teeth can tell with certainty a great deal about the individual to which it belonged. There is not a shadow of doubt that the Heidelberg man belonged to the Neanderthal type; perhaps he may best be described as pre-Neanderthaloid, for in strength and massiveness of jaw he foreshadows the Neanderthal men whose remains were found in Europe towards the end of the Pleistocene. Of the Neanderthal race in the middle phases of the Pleistocene we have, so far, discovered no trace. Although in many features Neanderthal man shows resemblances to the anthropoids, in others he is highly specialised. The teeth of an Australian native make a nearer approach to the anthropoid condition than those of Neanderthal man.

We have knowledge of another fossil man belonging to the beginning of the Pleistocene. In 1891 Dr. Eugene Dubois discovered in Java the fossil remains of a man who in stature, posture, and gait must have been very similar to us, but so unlike us in head form that his discoverer named this new form of man—Pithecanthropus. The size of his brain (855 cubic centimetres) was little more than half the size of the brain of a well-developed modern man. The Neanderthal man described by Professor Boule had a cranial capacity of 1600 or 1625 cubic centimetres. It is usual to accept the fossil man of Java as representative of his time and race, but if we do we have to suppose that, in the early part of the Pleistocene, within a comparatively short space of time, the human brain developed at an astounding and almost incredible rate. I leave the matter there, simply asking my audience to keep in mind that there did exist in the Far East at the beginning of the Pleistocene or perhaps close of the Pliocene a very low form of primitive man.

Thus we have a knowledge—a very imperfect knowledge—of only two human individuals near the beginning of the Pleistocene period. The one was brutal in aspect, the other certainly low in intellect. It is hard, then, to believe that in strata belonging to the period preceding the Pleistocene there could be found fossil remains of a man of quite a high and modern type. Yet the details relating to the discovery of human remains by Professor Ragazzoni in early Pliocene strata of North Italy are so circumstantial and supported that one cannot place them lightly aside. In 1860 Professor Ragazzoni was searching in undisturbed Pliocene strata for fossil shells; he discovered remains of a human skull. His discovery was received with derision. Between 1860 and 1880 he found in the same strata remains of three further individuals. The only living anthropologist authority, so far as I can learn, who accepts Ragazzoni's discovery as authentic is the celebrated Italian anthropologist—Professor Sergi of Rome. If the remains found in these strata had been of a primitive type their authenticity would never have been called in question, but as they represented individuals as highly evolved as we are, the easiest solution of the problem was to suppose that by some means these remains had been interpolated in ancient strata at a later date.

Conclusion.

Is it, then, possible that a human being, shaped and endowed as we are, may have existed so early as the Pliocene period? If we accept as authentic all the evidence brought forward by those who have traced man backwards by means of flints which have the appearance of man's work on them, then we must admit that Pliocene man is possible,

for stones, apparently artificially fashioned, have been found in strata as old as the Eocene. If, on the other hand, we examine the evidence relating to that group of animals to which man belongs—the higher primates—the facts, so far as we know them, render the existence of man in the Eocene and Oligocene periods impossible, improbable in the Miocene period, but quite possible in the Pliocene. If, finally, we take into consideration all the evidence relating to fossil forms of man, we must confess that the antiquity of the modern form of man is still an open problem. I, for one, am convinced that we have followed him almost unchanged to at least the middle of the Pleistocene, when we find him accompanied by another form of man almost as distinct from him as the gorilla is from the chimpanzee. Still further back, at the beginning of the Pleistocene, we find at least two forms of men—the pre-Neanderthaloid of Heidelberg and the small-brained man of Java—but the representatives of modern man at this early period we do not know. It does seem to me, taking all the scraps of evidence at our disposal, the slow rate of human evolution, and the great blanks in the geological record into account, that a man as high as the Australoid of to-day was then in existence, but I cannot bring myself to believe that human individuals as highly evolved as those discovered by Professor Ragazzoni were in existence at an early part of the Pliocene period.

The problem of man's antiquity is not yet solved. The picture I wish to leave in your minds is that in the distant past there was not one kind but a number of very different kinds of men in existence, all of which have become extinct except that branch which has given origin to modern man. On the imperfect knowledge at present at our disposal it seems highly probable that man as we know him now took on his human characters near the beginning of the Pliocene period. How long ago that is must be measured, as Professor Boyd Dawkins insists, by the changes which the earth and living things have undergone, and yet it is only human to try to find a means of measuring that period in a term of years, and the estimates at hand give an antiquity of at least a million and a half of years.

VERTEBRAL ANKYLOSIS:

THE VARIOUS CLINICAL FORMS.

BY JEAN DARDEL, M.D.,

OF THE FACULTY OF MEDICINE OF PARIS; CONSULTING PHYSICIAN AT AIX-LES-BAINS, SAVOIE.

IT WAS only towards the end of the nineteenth century that an attempt was made to differentiate special morbid types of ankylosis of the spinal column. Step by step we learned to distinguish Bechterew's kyphosis, Kümmel's kyphosis, rhizomelic spondylosis, and vertebral rheumatism of the osteophytic or deforming type. It occurs to me that it may be of interest to group the principal morbid types thus separately described and to deal with vertebral ankyloses as a whole, dwelling especially on the practical aspects of the subject.

The first group of ankylosing diseases of the spinal column comprises P. Marie's *rhizomelic spondylosis*. Described by Strümpell (one case) in 1897, but more fully by René Marie, who conferred upon it the name by which it is at present known, it was subsequently thoroughly investigated by Leri[1] in 1899 and again in 1905.

Rhizomelic spondylosis is met with more particularly in males—in fact, only two cases of the disease occurring in women are on record, one by Gasne and a more recent one by Aldaroff. The disease occurs between 20 and 40 years of age, and runs a very protracted course for years, indeed until the death of the patient. The onset may be sudden, acute or subacute, but it is more frequently slow and progressive.

In the less common form, with a sudden acute or subacute onset, pain sets in in the back of the neck, the pelvic joints, and the knees, just as in an ordinary attack of acute rheumatism, except that there is no fever. In the course of several weeks or months, when the pain has subsided, the vertebral column is found to be ankylosed. In the much more frequent forms that are chronic *ab origine* the onset is insidious, and the patient only complains of vague pains or aches, with some interference with movement, associated with progressive ankylosis of the pelvic joints, shoulders, and spinal column. In some instances the ankylosis is not associated with any pain. The vertebral ankylosis is not complete forthwith. It starts in the cervical, lumbar, or dorsal region, and then spreads like a drop of oil gradually involving the whole of the spinal column. At the same time, or, it may be, long before or after the involvement of the vertebral column, the hips and shoulders become the seat of vague rheumatic pains which, little by little, are followed by creaking in the articulations and partial or complete ankylosis. Ultimately, the rhizomelic spondylosis is fully developed. At this stage the vertebral ankylosis is complete, and the process of ossification invades at the same time the hips and shoulders. The patient, seen from the front, is bent forward with the face towards the ground, the spinal column forming a regular curve, the segment of a wide circle. The kyphosis is in most instances dorsal, though there may be cervical or lumbar predominence.

This kyphosis as a rule is general and without scoliosis, though in exceptional cases this may be present. The kyphotic curve determines the disappearance of the physiological lumbar lordosis. The whole column is rigid in severe cases and is all of a piece. In less pronounced cases the upper cervical part of the column and the lower lumbar region can still be flexed, although the dorsal ankylosis is already complete. The walls of the thorax are flattened and fixed in consequence of the invasion of the costo-vertebral articulations. Respiration is abdominal, and two or three big transverse folds form on the abdomen, below which the belly projects, convex, moving with inspiration and expiration.

As might be anticipated, the ankylosis entails numerous disturbances. The patient, bent forwards towards the ground, can no longer look upwards or even turn the head without the body, as a whole, following the movement. If he be asked to pick up something from the ground he crouches, and if the object be placed at his side he is often obliged to go back a little before crouching down, measuring with his eye the spot where his hand can be lowered vertically to grasp the object. Moreover, when the patient is looked at sideways it is seen that in consequence of this enormous kyphosis the upper limbs hang down and are often on a plane much anterior to that of the lower limbs.

As to the other articulations (elbow, wrist, knees, dorsum of foot), they may suffer more or less from chronic arthritis with partial ankylosis and creaking, but this does not materially add to the clinical picture just set forth. When, however, these joints undergo true ankylosis in the same degree as the vertebral column, the patient becomes absolutely crippled. The ankylosis of the hips and shoulders takes place, as a general rule, in semi-flexion, but one meets with cases in which ankylosis takes place in extension (flexion and extension forms). More rarely we get pure non-rhizomelic spondylosis, the other joints remaining quite free. When the affection has lasted a certain time the knees, dorsum of feet, and elbows suffer in their turn, more particularly the temporo-maxillary articulation, the troublesome fixation of which constitutes such a hindrance to mastication that the patient may become quite unable to take solid food.

Independently of these joint ankyloses, mention must also be made of well-marked muscular atrophy with rigidity of the muscles of the pelvis and the scapular girdle; but these lesions, which are common to all arthropathies, present no special feature in relation to Pierre Marie's spondylosis.

When the disease is well-marked and accompanied by total ankylosis the patient is confined to bed, walking and every kind of movement being rendered impossible by the coxo-femoral ankylosis. The state in which such a patient

[1] La Spondylose rhizomélique, Revue de Médecine, August, September, and October, 1899. Autopsie d'un Cas de Spondylose rhizomélique (in conjunction with Professor Pierre Marie), Bulletin de la Société Médicale des Hôpitaux, Feb. 24th, 1899. Anatomie pathologique et Pathogénie des Ankyloses vertébrales, et Specialement de la Spondylose rhizomelique, paper read at the Liège Medical Congress, 1905. Anatomie pathologique et Pathogénie de la Spondylose rhizomélique (in conjunction with Professor Pierre Marie), Nouvelle Iconographie de la Salpêtrière, January and February, 1906. Pathogénie des Ankyloses, et particulièrement des Ankyloses vertébrales, Report read before the Congress for the Advancement of Science, Lyons, August, 1906. Clinical and Anatomical Diagnosis of Ankylosing Diseases of the Spinal Column, Review of Neurology and Psychiatry, Edinburgh, January and February, 1908.

finds himself is indeed most pitiable, for he is now completely and hopelessly crippled. Then, too, the pain, though not as a rule spontaneous, is apt to be severe, especially on the slightest movement.

Palpation reveals no tender spots along the vertebral column or over the joints. Radiography affords but little information beyond the welding of the articulations which is manifested by the disappearance of the articular surfaces. Radiography will also show the heart shape of these patients' pelves, and it will be seen that, as a matter of fact, the ossification takes place uniformly without the formation of osteophytes.

From the anatomical point of view the researches of A. Leri and Eldaroff show that there is ossification of the costo-vertebral ligaments, the costo-transverse ligaments, the supraspinal ligaments, the intervertebral discs, and the articular surfaces of the ribs with the vertebræ, and of the vertebræ with each other. This ossification comprises all the elements of true bony tissue, and Eldaroff in four cases insists on the fact that the process is one of progressive regular ossification without osteophytes, which gradually welds together all the segments of the skeleton. At the same time, *pari passu*, the bony tissue of the vertebræ undergoes rarefaction and becomes more or less porous. The common anterior and posterior vertebral ligaments, on the other hand, remain unaffected, as do the posterior parts of the intervertebral discs and the margins of the intervertebral foramina. The entire process seems to run its course without any pronounced inflammatory phenomena. Eldaroff, moreover, insists upon the normal state of the nervous system in these patients. Ossification takes place *in loco* fibre by fibre, and one meets with fibres which are ossified only in parts.

It is worthy of note that, as remarked by Leri, the joints that become ankylosed are almost exclusively those provided with a pad or meniscus (shoulder, hip, knee, sterno-clavicular, and temporo-maxillary). In short, the process is of the nature of an infectious or toxi-infectious osteopathy, with a specially marked tendency to rarefaction. According to Leri, the ossification of the ligaments and the ankylosis is secondary and constitutes a defensive reaction which limits the deformity—much the same thing, in fact, as that met with in ankylosis secondary to Pott's disease, for example.

The prognosis in this disease is gloomy, not so much in respect of life, but as the ankylosis progresses it absolutely cripples the patient, obliging him to keep his bed, hopelessly unable to attend to himself. Then, too, the disease predisposes to pulmonary tuberculosis, not only in the cases where, as we shall show, the tubercle bacillus may be incriminated as a factor in the production of ankylosing rheumatism, but in ordinary spondylosis. According to Plesch's recent researches, this predisposition to tuberculosis is to be explained by the diminution of the respiratory function present in these patients, the residual air, the supplemental air, and the vital, total, and average capacity of the lung being manifestly below the normal. The apices of the lungs are less aerated and less irrigated, and these disturbances of the local circulation and of hæmatosis may play a part in preparing the soil for tuberculous infection.

The second group of ankylosing diseases of the spinal column comprises cases of Bechterew's *heredo-traumatic kyphosis*. This comes on after a traumatism of the dorsal region followed forthwith by more or less intense pain. Then kyphosis gradually supervenes with pain and the production of a fairly regular hump in the middle or upper part. In some instances there may be various nervous disturbances (paræsthesia, pain, anæsthesia, atrophy of certain muscles of the occipital, dorsal, or lumbar region). On investigating the family antecedents we generally elicit a tendency to kyphosis, so that, as its name indicates, it is both traumatic and hereditary. In these cases the vertebral traumatism merely favours the production of ankylosis in subjects predisposed thereto.

According to P. Marie, Astié, and Leri [2] the lesion consists of rupture of the great anterior common ligament of the spine, suddenly following a traumatism of the lumbar region (a fall on the back or a heavy blow on the spine), thus straightening the normal convexity of this part of the column, and in so doing inflicting an actual sprain of the column with rupture of the ligament. The secondary ossification of the anterior ligament in a normally concave region steadily increases the concavity and determines the kyphosis. This explanation, however, is not accepted by all authorities, and Bechterew inclines to the view that the traumatism is followed by chronic inflammatory changes in the spinal meninges, a sort of hypertrophic spinal pachymeningitis. The nerve roots are often compressed at the same time, and the cord substance may here and there present patches of softening of variable dimensions. Its pathogenesis, therefore, is still doubtful.

Side by side with heredo-traumatic kyphosis must be grouped cases of Kümmel's *traumatic kyphosis*, which present special interest from the point of view of workmen's compensation. Traumatic spondylitis, the so-called Kümmel-Verneuil disease (first described by Kümmel in 1891 and by Verneuil in 1892, investigated by Henle in 1890, and later by Brehmer,[3] Kirmisson,[4] and Gresil [5]), supervenes, as its name indicates, after direct or indirect injury to the spinal column—a fall on the ischia, bruising of the vertebræ, blows on the neck, or even a vigorous effort on the part of the victim to avoid falling.

Immediately on the receipt of the injury the victim complains of severe pain, not infrequently followed by loss of consciousness. There may be complete powerlessness, which, however, only lasts a few days, but when this clears up it is found to have left paresis of the lower limbs and the bladder, with exaggeration of the patellar reflexes. The nervous disturbances clear up pretty rapidly, but the osseous disease runs its course. In the second stage, which may not supervene for some months after the initial injury, we get pain at the seat of the injury with girdle pain of the neuralgic type, disturbances of motion and sensation, and occasionally genito-urinary troubles with fæcal incontinence and either incontinence or retention of urine. In some instances these symptoms are wanting or are but slight. The most characteristic feature, however, is the appearance of wide-angled vertebral kyphosis, the apex of which corresponds to the damaged vertebra, over which is a more or less marked prominence. Once formed, the gibbosity is permanent and may remain for 10 or 20 years and upwards without the production of any other morbid phenomenon.

The pathogenesis of the kyphosis is much debated. Some observers hold that it is consequent upon simple fracture of a vertebra, others are in favour of a hæmatoma of the dura mater, while others again attribute it to unrecognised Pott's disease. The condition, therefore, presents considerable interest from a medico-legal point of view, especially as the lack of post-mortem data precludes any really satisfactory explanation.

The third group of cases comprises *osteophytic vertebral rheumatism*, which is sometimes slight, sometimes very severe. In its mildest form it may be met with even in skeletons reputed to be normal in the shape of osteophytes, either in plates or pointed projections, situated on the margins of the articular surfaces or in the intervertebral foramina, in which case it is apt to give rise to very refractory pain in the nerve roots. In graver cases it is characterised by thick, rounded, voluminous osteophytes similarly situated on the articular margins of the vertebræ, the costo-vertebral articulations, and the articular processes. In the long run these exostoses coalesce and culminate in a bridging together of the vertebræ, the intervertebral discs remaining intact. In these cases the spinal column is perfectly straight, vertical, the normal curves having quite disappeared. The patient suffers from more or less widespread typical chronic ankylosing rheumatism and dry arthritis.

The fourth group is made up of cases of *deforming spondylitis* due to the variety of deforming vertebral rheumatism, which was isolated from the preceding group by Regnault in 1897. It is met with in patients suffering from chronic deforming rheumatism of the joints, large and small, but the spinal column, instead of being in a straight line, is kyphotic or kypho-scoliotic. From an anatomical point of view the ligaments, instead of being normal as in the preceding cases, are ossified, while the intervertebral foramina, on the contrary, are intact. The tissue of the vertebræ is often light and porous, instead of being heavy and dense, as

[2] Contribution à l'Étude de la Pathologie Rachidienne, Autopsie d'un Cas de Kyphosis Hérédo-traumatique, Société Médicale des Hôpitaux, July 22nd, 1904.

[3] See Godormeche's Thesis, Paris, 1897, and Chappot's Thesis, Nancy, 1905.

[4] Kermisson: Revue d'Orthopédie. 1896.

[5] Grisel, Ibid., 1907.

in osteophytic vertebral rheumatism. At a more advanced stage of the disease there is total ankylosis, which is uncommon in the preceding type.

Having arrived at the end of this anatomo-clinical investigation, and having set forth the various types of ankylosing diseases of the spinal column, the question naturally arises whether these clinical forms have a well-defined etiology capable of giving birth to morbid types which admit of strict definition.

With regard to Bechterew's heredo-traumatic kyphosis and Kümmel's traumatic kyphosis we should probably be justified, in view of their etiology and course, in regarding them as special local varieties of vertebral ankylosis with traumatism as the causative agent. Nevertheless, it must not be forgotten that the nature of these cases is at the present time under discussion, and that, especially in Germany, the tendency is, in regard to some of the cases, at any rate, to attribute them to bacillary infection.

Whether chronic ankylosing rheumatism, deforming spondylitis, and rhizomelic spondylosis are to be regarded as morbid entities is still an open question. Authorities on the subject may be divided into two groups holding two opposite extreme views, one being in favour of a generic cause, the other of a specific process.

Rhizomelic spondylosis, for instance, which constitutes the best-defined clinical type, was considered by P. Marie and his school to present specific lesions and to be a definite disease. Clinically, however, it is met with in patients suffering from progressive deforming rheumatism and from partial rheumatism just as much as in those suffering from typical pure spondylosis. It follows that the clinical type is variable, and we know, too, that its etiology is very variable—that it may supervene after exposure to cold and damp, like true rheumatism, and that, on the other hand, it may follow infective pseudo-rheumatism as shown by certain reported cases (du Amaral, Leri, Raymond, Riollet, and others), in which gonorrhœa was the most obvious and the most frequent cause. Since 1903 various authors have published cases apparently of tuberculous origin, so that, clinically, rhizomelic spondylosis appears to be a syndrone dependent upon a very diverse etiology. The same remark applies both to chronic deforming and osteophytic rheumatism.

We have to ask ourselves whether the idea of the specificness of the disease is therefore to be rejected, ignoring the interesting attempts of various authors to classify incongruous data and to throw light on their differential points. Now it seems to me quite possible to admit that certain infectious and toxic elements may be capable of determining different anatomical lesions according to the particular soil, in such wise that rhizomelic spondylosis and ankylosing vertebral rheumatism retain their specific histological lesions up to a certain point, although they may be caused by several different agents. This, indeed, is the view that tends to prevail more and more in regard to chronic rheumatism of the limbs and its relationship to chronic infectious pseudo-rheumatism.

Ferrier, for instance, in his articles on the subject, describes forms of partial chronic rheumatism, chronic rheumatism affecting the rhizomelic spondylosis type, and generalised rheumatism, dependent either upon chronic rheumatism or gout or pseudo-rheumatism (tuberculous, gonococcic, &c.) without its being possible to differentiate these forms clinically on the strength of the articular manifestations.

This, however, is mere hypothesis, to which we are fain to have recourse by reason of the insufficiency of the data at present available. This has, at any rate, the advantage of simplifying matters and of throwing some light on these extremely complex problems.

The treatment of these ankylosing affections is still very uncertain. In some cases of spondylosis the articular heads of the bones have been resected, but re-ossification took place almost at once. Dr. Leri recommends weight extension rendered permanent by allowing the head to hang without a cushion or applying traction by means of a chin-piece. By this means he claims to have obtained remarkable results. We might also give a trial to intramuscular injections of fibrolysin, which are reported to have yielded favourable results in some instances. In a case recently brought before the Paris Hospitals Medical Society Dr. Millian reported extremely satisfactory results. The patient had been given 24 injections of 2 c.c. of fibrolysin containing 20 cgm. of fibrolysin per c.c. in the course of three and a half months—in all, 4·80 grm. of fibrolysin. The treatment was well borne and determined well-marked increase of mobility of the cervico-dorsal joints of the spinal column and an increase in the respiratory capacity of the thorax. This treatment would, therefore, appear to be indicated in cases of spondylosis. It is true that Dr. Millian's patient had only been suffering for two years, but in the absence of any other active treatment his results are certainly of interest. As in other forms of chronic rheumatism five- to ten-grain doses of aspirin repeated several times daily will assuage the pain.

The spa treatment, comprising massage, douche massage, vapour baths, and general mineral water baths, as carried out at Aix-les-Bains, unquestionably delays the progress of the disease and helps to maintain mobility of the joints. In young recent cases, indeed, the greatest benefit is sometimes derived from repeated courses of thermal treatment, but there is always a great element of uncertainty, and it is never safe to promise a tangible measure of improvement. Nevertheless, this treatment is always to be advised, if only for its excellent effects on the general health and spirits of the sufferer, especially as it of necessity entails a complete change of environment and climate. These means may be supplemented by hot-air treatment and by various electrical applications (high frequency, radiant heat, &c). The continuous and galvanic currents are of use in that they help to prevent muscular atrophy, which is otherwise well marked in this class of affections. To postpone the advent of total irremediable ossification is the next best thing to a cure, and this at any rate can be confidently hoped.

Lastly, when there is any reason to suspect that the ankylosis is not due to true chronic rheumatism, but is of the nature of an infectious pseudo-rheumatism, we must look out for a history of chronic gonorrhœa, chronic prostatitis, gleet or tuberculosis, which is often latent in these cases. Independently of these well-defined cases, the etiology of which is known and which are amenable to a specific treatment, vertebral ankylosis can only be treated on general symptomatic principles applicable to all forms of chronic rheumatism.

Aix-les-Bains.

ON THE NATURE OF PANCREATIC DIABETES.[1]

PRELIMINARY COMMUNICATION.

BY F. P. KNOWLTON

AND

E. H. STARLING, M.D. LOND., F.R.C.P. LOND., F.R.S.,

JODRELL PROFESSOR OF PHYSIOLOGY, UNIVERSITY COLLEGE.

(*From the Institute of Physiology, University College, London.*)

MANY explanations have been proposed for the fact, discovered by von Mering and Minkowski,[2] that extirpation of the pancreas is followed immediately by severe and fatal diabetes. It has been suggested, on the one hand, that the normal function of the pancreas is to diminish excessive production of sugar, and that, in the absence of its restraining influence, excessive sugar production and mobilisation are the results. On the other hand, the fact that carbohydrates are not utilised by the body when administered to animals in this condition has been interpreted as showing that the tissues have lost their normal power of assimilating and utilising glucose. It has also been suggested, though without much experimental support, that the sugar of the blood has to be built up into some other form before it can be utilised by the tissues.

We have recently, in a research on the influence of mechanical conditions and of temperature on the heart-beat, modified the procedure described by Jerusalem and Starling[3] for working with a heart-lung preparation, so that we are able to keep a heart, connected with the lungs but isolated from the rest of the body, beating for many hours in approximately normal conditions—i.e., working at a normal arterial pressure and with a normal output. In this preparation we are able to vary at will the venous filling of the heart,

[1] A paper read before the Royal Society on March 28th, 1912.

[2] Archiv für Experimentelle Pathologie und Pharmakologie, 1889 vol. xxvi., p. 371.

[3] Journal of Physiology, 1910, vol. xl., p. 279.

the arterial resistance, or the temperature. The total amount of blood employed is about 300 c.c., and as the heart of a small dog puts out about 150 to 250 c.c. of blood per minute, the whole of the blood in the apparatus circulates through the heart once in every two minutes. It occurred to us that it might be possible by using this preparation to throw light on the pathogeny of pancreatic diabetes.

I. *The Consumption of Sugar in the Normal Heart.*

The power of the tissues to utilise glucose directly was asserted by Chauveau and Kaufmann[4] in the case of voluntary muscle, and has been proved in the case of the heart transfused with Ringer's fluid, by Locke and Rosenheim,[5] and by Rohde[6] and others. In our experiments a small proportion of glucose having been added to the blood it was allowed to circulate through the heart at a temperature of 37° C. continuously for two to three hours. The arterial pressure was kept throughout at 80 to 90 mm. Hg. The following table represents some of the results obtained :—

TABLE I.—*Consumption of Sugar by the Heart. Normal Heart Fed with Normal Blood.*

—	First period (1 hour).			Second period (1 hour).		
	Sugar in blood.		Milligrammes sugar per gramme heart.*	Sugar in blood.		Milligrammes sugar per gramme heart.*
	Before.	After.		Before.	After.	
	Per cent.	Per cent.		Per cent.	Per cent.	
Dog	0·79	0·66	5·8	0·66	0·59	5·6
	0·70	0·61	4·8	0·61	0·56	3·5
	0·20	0·11	3·9	0·32	0·25	3·5
Cat	0·58	0·51	4·2			
	0·72	0·65	5·1			
	Sugar in serum.			Sugar in serum.		
Dog	0·63	0·50	4·1	0·50	0·33	4·1
	0·81	0·69	3·5	0·69	0·57	2·8
	0·89	0·71	5·15			

* This column was calculated after determining the total volume of blood in circulation and the weight of the heart.

From these results we may conclude that the normal heart fed with normal blood under approximately physiological conditions consumes about 4 mgrm. of sugar per hour and per gramme of heart muscle.

II. *The Consumption of Sugar in the Diabetic Heart.*

Similar experiments were carried out on the hearts of dogs from which the pancreas had been removed from three to six days previously. The following table represents the results obtained in six such experiments :—

TABLE II.—*Sugar Consumption in Diabetic Heart.*

Sugar in serum.		Milligramme sugar per gramme heart per hour.
Before.	After 1 hour.	
Per cent.	Per cent.	
0·59	0·60	0
0·30	0·24	1·1
0·74	0·74	0
0·57	0·54 (1½ hours)	1·0
0·53	0·52	0·5
0·50	0·49	0·5

It will be seen that the consumption of sugar was very much less than in normal hearts. In two cases the sugar titration gave the same results at the beginning and at the end of the hour. In two other cases a difference in titration was obtained which pointed to a consumption of sugar of 0·5 mgrm. per gramme of heart muscle. But this difference was within the limits of our experimental error. A series of parallel estimations of sugar in different samples of serum gave the following results :—

TABLE III.—*Estimations of Sugar in Different Samples of Serum.*

Blood	1	2	3	4	5
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Sample A ...	0·63	0·61	0·365	0·36	0·37
„ B ...	0·62	0·62	0·37	0·38	0·37

[1] The average experimental error was therefore 0·01 per cent. and the *maximal* error 0·02 per cent. Moreover, we have evidence of the occurrence of a certain small amount of glycolysis in the blood itself. This in normal blood was probably not greater than 0·01 per cent. per hour during the first two hours of the experiment. In diabetic blood taken at the end of the experiment a somewhat higher degree of glycolysis was occasionally observed.

The following results give the glycolysis actually observed in the blood itself :—

Percentage of sugar.			Glycolysis per hour.
A. Normal blood + dextrose—			
1st sample.	2nd sample (after 1½ hours at 37° C.).	3rd sample (after 3 hours at 37° C.).	
A 0·62	0·62	0·59	0·01%
B 0·63	0·61	—	—
B. Diabetic blood alone—			
1st sample.	2nd sample (after 1½ hours at 37° C.).		
A 0·22	0·175 (+ pancreatic extract)		0·025%
B 0·22	0·18 (+ saline solution)		—
C. Diabetic blood + dextrose (after use in experiment)—			
(1) 1st sample.	2nd sample (after 1 hour).		
A 0·36	0·37		0·00%
B 0·38	0·37		—
(2) 1st sample.	2nd sample (after 3 hours).		
0·33	0·24		0·03%
(3) 1st sample.	2nd sample (after 2 hours).		
0·91	0·89		0·01%

It is possible that a summation of glycolysis and experimental error would account for the highest figures obtained in the series of experiments on the diabetic heart. They show, at any rate, that the consumption of sugar by the diabetic heart is minimal or, as we are inclined to believe, entirely absent.

III. *Is this Loss of the Power to Utilise Sugar in the Diabetic Heart Due to the Absence of Some Substance Normally Present in the Heart and Circulating Blood and Presumably Formed by the Pancreas, or to the Presence of Some Toxic Substance Accumulating as a Result of Extirpation of the Pancreas and Preventing the Utilisation of Sugar by the Tissues?*

Two sets of experiments point to the former explanation as the most probable. In the first set of experiments the heart from a diabetic animal was fed with blood from a normal animal. In this case the consumption of sugar, even in the first hour, was considerably above that observed in the diabetic hearts fed with diabetic blood, and steadily increased during the next two hours of the experiment.

Consumption of Sugar by Diabetic Heart Fed with Blood from a Normal Dog.

Milligrammes per gramme Heart Muscle.		
1st hour.	2nd hour.	3rd hour.
2·9	5·23	8·1

In the reverse experiment a normal heart was fed with diabetic blood. In this case the consumption of sugar during the first hour was only slightly below normal, and steadily diminished during the succeeding two hours, as is shown by the following figures :—

1st hour.	2nd hour.	3rd hour.
3·5	2·5	1·7

The obvious interpretation of these two sets of experiments is that the tissues and blood normally contain some substance the presence of which is essential for the direct utilisation of sugar by the tissues. This substance is gradually used up in the tissues, and therefore has to be

[4] Comptes Rendus de la Société de Biologie, 1893.
[5] Journal of Physiology, 1907, vol. xxxvi., p. 205.
[6] Zeitschrift für Physiologische Chemie, 1910, vol. lxviii., p. 181.

continually replaced from the blood if the utilisation of sugar is to continue.

IV. *Is this Substance derived from the Pancreas?*

To answer this question an extract of pancreas was made by grinding up the gland, boiling it in slightly acid Ringer's solution, and filtering it to free it from the coagulated proteins; 10 c.c. of the filtrate were neutralised with a few drops of sodium carbonate solution and added to the blood circulating through the heart of a diabetic animal. The addition was in each case made during the second hour of the experiment, in order that the consumption of sugar by the heart during the first hour might be tested. The following results were obtained:—

Diabetic Heart Fed with Diabetic Blood.

Consumption of Sugar in milligrammes per gramme of Heart Muscle.

First hour (blood alone).	Second hour (after addition of pancreatic extract).
1·5	4·3
0·5	3·0
0·5	2·8
0·5	3·6

It will be seen that in every case the addition of a boiled extract of pancreas, whether derived from the same animal (dog) or from another animal (cat), raised the sugar consumption by the heart from a figure which was within the limits of experimental error to a point closely approaching that found in normal hearts. The effect of the pancreatic extract in improving the action of the heart was evident during the experiment itself. In most cases the heart in the diabetic animal, under the conditions of the experiment, has a lower rate of beat than that found in the normal animal. The effect of adding the extract of pancreas was to quicken the rate of beat up to a normal figure. Thus, in one experiment, the rate of beat during the first hour was 108 per minute while feeding with diabetic blood; during the second hour, after the addition of pancreatic extract to the same blood, the heart beats rose to 144 per minute.

We hope to continue these experiments, and especially to determine the respiratory quotient in the normal and in the diabetic heart, and the influence of pancreatic extract on the same. So far as our results go, they seem to indicate that the pancreas normally produces a hormone which circulates in the blood, and the presence of which is necessary in order that the tissue cells may be able to assimilate and utilise the sugar of the blood. In fact, they indicate that the second of the two explanations, which have been mentioned above as having been proposed for the occurrence of pancreatic diabetes, is essentially correct.

SOME UNUSUAL CONTENTS IN HERNIAL SACS.

BY ARTHUR E. BARKER, F.R.C.S. ENG.,
SURGEON TO UNIVERSITY COLLEGE HOSPITAL AND CONSULTING SURGEON TO THE QUEEN ALEXANDRA MILITARY HOSPITAL, MILLBANK, S.W.

SEVERAL cases in which I have quite recently been called upon to operate offer a forcible reminder of the never-ending interest in the subject of hernia. We are, I venture to think, inclined to forget this in the midst of incessant operation for the condition in its simpler forms. And yet without an occasional reminder of the various contents which may be found in hernial sacs it is quite possible for experienced operators to make serious mistakes. Only those who are well forewarned will be forearmed.

It would be quite possible to record many more cases of unusual contents in hernial sacs from a long experience as an operator, but only five of the latest and most interesting which have been under my care will be mentioned here. They all illustrate difficulties which may be encountered both in diagnosis and treatment, and the pitfalls into which any surgeon may fall unless he is prepared for them.

Appendix Abscess in Hernia.

CASE 1.—The patient, aged 53, was admitted into University College Hospital on May 1st, 1912. She had been suffering from a rupture on both sides for 20 years, which were reducible as a rule, giving no trouble until the present illness. A swelling in the right groin had been present for ten days, and the patient had been feeling poorly before this, but the swelling did not appear until ten days before admission. There had been sickness some days before admission, but the bowels had been moved by the use of drugs. The patient had had no similar attack previously. She was sent to the hospital with a diagnosis of "gangrenous hernia."

On admission a swelling was found in the right groin mostly below Poupart's ligament. It was indefinite in outline, extending from the pubis nearly to the anterior iliac spine. The skin over it was red, tender, and œdematous. Temperature 103·2° F.; pulse 100. No separate inflamed inguinal glands could be felt. The abdomen was not distended, but a distinct indolent swelling could be felt within the peritoneal cavity above Poupart's ligament, which was very tender. On seeing the case I did not think it could be a gangrenous hernia. The tumour in the groin was dull on percussion; the bowels were acting, and there was an intraperitoneal swelling. Had there been gut in the femoral sac the bowels would hardly have acted freely and frequently, and resonance either from gas in the intestine or gangrenous gases would have been present. Simple omental hernia followed by gangrene is rare. Besides this there was the large intraperitoneal swelling to be accounted for. My belief was that we had before us an appendix abscess pointing through the femoral ring. The sequel proved this to be the case. An incision through much œdematous tissue was made and a femoral sac opened, in which were a quantity of very foul pus and a small tag of sloughy omentum. On wiping the sac out the femoral ring was seen, and from it more foul pus could be squeezed by pressure on the lump within the abdomen. A probe cautiously passed into the neck of the sac passed backwards and outwards into the cavity from which the pus escaped. Nothing further was done but to pass a drain tube through the femoral ring and loosely pack the sloughing wound and sac with gauze. The result was perfectly satisfactory, and in three weeks the wound cleaned up and was soundly healed. In the meanwhile the intra-abdominal swelling had subsided, the temperature fallen to normal, and the pulse dropped to 68.

Feeling sure of the diagnosis of appendicitis I waited another ten days, and then on May 30th opened the abdomen in the usual way and found a long vermiform appendix firmly adherent by recent adhesions to the inner aspect of the femoral ring. The apex was almost destroyed. It was removed in the usual way and the wound healed by first intention. This last operation confirmed the diagnosis made before the first and reminded me strongly of another case which occurred to me a couple of years ago which follows.

CASE 2.—A married woman, aged 62, was admitted to hospital on Feb. 5th, 1910, as a case of right inguinal hernia (strangulated). She was a stout woman, and had had a hernia on this side for 27 years, and on the left for 35 years. On Jan. 17th (19 days before admission) the right-sided hernia became large, painful, and irreducible. The patient was sick only once at the outset. Since then the tumour had remained painful, but more so for the last three days before admission. The bowels had been regular until the last day. On admission the whole right inguinal region was swollen, œdematous, painful, and very tender to the touch; its upper half was tympanitic, the lower dull.

There was a difficulty in accepting the diagnosis of gangrenous inguinal hernia. The swelling had become large and tender 19 days before. Had there been gut in it all this time it might well be gangrenous, but the bowels would not have been regular. An omental protrusion might have become gangrenous, but in an old hernia such a thing is very rare, and would be hard to explain. The diagnosis was therefore uncertain, but the treatment to be adopted was obvious. Under a local anæsthetic the tumour was incised from end to end, and a very large quantity of pus and sloughy tissue found lying upon the external oblique muscle. But a great quantity of pus came also through the external ring, into which the finger could be passed. It was clear to me, then, that the main abscess was intra-abdominal and lay in the neighbourhood of the appendix. With this the history of the case corresponded. I had had a similar case some years ago in hospital, the notes of which cannot be discovered at the moment. In it the swelling went down after incision, but the wound continued

to discharge for a long time, and many weeks later the patient died from asthenia. A necropsy revealed an abscess round a carcinoma of the cæcum.

In the present case the wound soon cleaned up under fomentation and healed soundly. It was quite well three months later, when I operated on the other side for radical cure of long-standing hernia. I saw no more of this patient until quite recently, when she came complaining of recurrence of her hernia on the left side.

Uterus and Adnexa in Inguinal Hernia.

CASE 3.—A married woman, aged 65, was readmitted into University College Hospital in July last for a large left hernia which was a recurrence after an operation 2½ years before. The nature of the swelling was not clearly demonstrable. It was as large as an adult fist; the contents were very hard and of irregular outline, and absolutely irreducible. There was no impulse on coughing and no gurgling. I was inclined to regard it as a simple epiplocele in which the omentum was condensed and hard, and probably adherent.

On opening the sac, which was not tense and contained some fluid, the *whole uterus, both broad ligaments, Fallopian tubes, and ovaries* appeared to be the only contents. Nothing abnormal was noticed about them. They were absolutely irreducible and required free incision of a good deal of the cicatricial tissue of the old operation before they could be pushed back into the abdomen. The wide inguinal rings were then closed by deep stitches, taking up as much tissue as possible. The whole wound healed under one dressing *per primam*.

When operated on two and a half years ago for the radical cure of hernia on the same side the contents were found to be small intestine without any omentum, and the uterus and adnexa were not seen. It follows, then, that the prolapse of the latter was a new thing. The patient was a corpulent woman with a more or less pendulous abdomen.

This is the only case of the kind which I have seen in a very large experience of hernia. I do not know how it could have been diagnosed, except, perhaps, by the examination of the vagina with a speculum and the use of a uterine sound, which did not occur to me at the time. The inguinal aperture here was very large and the patient very corpulent, but it is hard to account for the presence of the uterus, both broad ligaments and ovaries in the sac by these conditions alone. There must have been a very great mobility of the uterus and adnexa besides.

Urinary Bladder in Inguinal Hernia.

CASE 4.—On July 7th, 1912, I was notified that a man, aged 64, had just been admitted to hospital for a large right inguinal hernia, which had appeared under the scar of a radical operation done at another metropolitan hospital 14 years before. The present swelling had been present for many years, but had been reducible with more or less difficulty until the morning of admission. Then during a strain the hernia had suddenly increased in size, with pain, and since that moment had not yielded to pressure. Another point of which the patient complained was that since the increase of the hernia in the morning he had been unable to pass any urine. He further stated that for a long time back (three or four years) he had been unable to pass urine until he had partly reduced the hernia. But since the morning, when it had suddenly enlarged (he had been sick, though the bowels were open) and become irreducible, he could not micturate with every desire to do so. This was confirmed by his medical man, who had catheterised him without any result except a few drops of blood-stained urine. My house surgeon had also passed a catheter, but could get nothing. The inguinal swelling was as large as a cocoanut, extending from the external ring into the scrotum; it was dull on percussion and elastic, and no effect was produced by taxis.

To anyone who has seen *inguinal cystocele* before, the diagnosis seemed clear, as I told my house surgeon over the telephone before seeing the patient. A catheter was passed on the table just before operating and 1 oz. of urine was obtained. Under the perfect relaxation of spinal analgesia taxis was successful as far as a hard mass of omentum was concerned, but the bulk of the tumour was still irreducible. As a matter of interest a catheter was now introduced per urethram and 5½ oz. of urine withdrawn, proving clearly the nature of the tumour. An incision was now made in the usual direction through the old scar of the operation of many years before. The cord was found lying *in front* of the narrow neck of the tumour. The mass was separated from the surrounding tissues and lifted up. It could be then traced with the fingers down to the prostate, at which it could be distinctly felt to terminate. The white fat and veins of the cavum Retzii behind the pubis could be distinctly recognised, *and materially helped* the diagnosis. The peritoneum was not seen, and of course the hernia had no sac. This constitutes the snare into which the operator may fall who has not seen such cases. He may mistake the bladder for a thickened sac and may open it in error. Several cases of this mistake were recorded some few years ago at the Medical Society as occurring in London.

When the clear nature of the tumour was recognised it was pushed back through the wide rings, and these were closed in the usual way. Primary union followed without a flaw, and all the urinary symptoms disappeared. The patient is now quite well, having left the hospital within three weeks.

Several similar cases have occurred within my experience in which the bladder was more or less prolapsed in inguinal herniæ, but never to the same extent. The most notable was that of a military man, aged 65 (Case 5), who had long suffered from a right inguinal hernia with urinary troubles. In this case it was more difficult to diagnose the condition, which was only recognised with difficulty at the operation. The bladder was pushed back, the rings closed, and he was quite relieved of all his troubles and has remained well for years.

Harley-street, W.

A CASE OF RETROGRESSIVE TUBERCULOUS MENINGITIS.

BY W. TYRRELL BROOKS, M.A. OXON., M.B. LOND.,
SENIOR PHYSICIAN TO THE RADCLIFFE INFIRMARY, OXFORD;
AND
ALEXANDER G. GIBSON, M.D. OXON., M.R.C.P. LOND.,
UNIVERSITY DEMONSTRATOR IN PATHOLOGY.

THE patient, a girl, aged 4 years, was admitted into the Radcliffe Infirmary on August 24th, 1911. Three weeks previously she had been taken ill with vomiting, thirst, and drowsiness; in two days she became practically unconscious, though she recognised her parents at times. There was no screaming. The patient was one of a family of nine, all healthy, as well as her parents, and the only illness in her life had been measles two years previously. On examination she was rather thin and of a good colour. She could answer questions, and asked for her mother. The eyes were staring; the pupils were moderate in size and reacted to light. There was good muscular coördination of the eyes on movement, and no squint. She could not fix or follow an object held up before her. Nothing was detected on examination of the heart and lungs. The abdomen was retracted, but was otherwise normal. The knee-jerks were brisk, and Babinski's sign was present in both feet. Kernig's sign was elicited on both sides.

On Sept. 6th the knee-jerks were absent; there was marked wasting of all muscles. The plantar response in both feet was flexor, and no Kernig's sign could be got. The abdomen was flaccid, but not so retracted as formerly. There was a dark purpuric rash over the abdomen which had been present for seven days. The fluid obtained by lumbar puncture was not under tension; it was slightly turbid and contained an excess of lymphocytes. Organisms were not looked for in this specimen. On the 7th there was increased head retraction and lumbar puncture was again performed, only a small amount of fluid being obtained. On this and on the previous occasion lumbar puncture slightly lessened the head retraction. On the 13th lumbar puncture was again done, 2 c.c. of slightly opalescent fluid being withdrawn, not under tension. In the clot from this fluid tubercle bacilli were found in small numbers.

On Sept. 21st an examination of the ocular fundi showed no obvious swelling of either disc; the edges of the right disc were indistinct, the retinal vessels were very small, and the choroidal vessels plainly visible. The edges of the left disc were indistinct and the vessels were small. Near the macula were two small oval patches, reddish-brown in colour, and another close to an artery above the disc; these

were thought to be choroidal tubercles. Later (on the 29th) there was well-marked neuroretinitis of both discs.

On Sept. 27th the child was extremely emaciated; the right pupil was larger than the left. The heart and lungs were normal, the knee-jerks were present, and the plantar response was extensor on both sides. On Oct. 21st the head retraction was very marked, and the patient was extremely emaciated. Babinski's sign and Kernig's sign were present on both sides. Since Sept. 24th, when tuberculin was given, there had been some improvement, but there was some retrogression at this time. On the 25th about 8 c.c. of clear fluid were withdrawn by lumbar puncture. In this specimen no tubercle bacilli were found, but a few Gram-positive cocci, not intracellular, were seen; a culture on agar produced no growth.

On Nov. 18th the patient cried out while the tuberculin injection was being given; on all previous occasions she had been quite apathetic. On the 22nd 15 c.c. of clear fluid were withdrawn by lumbar puncture; the tube unfortunately got broken before an examination of its contents could be made. The head retraction was getting worse, and the patient had been crying out as if in pain; nevertheless, she had been taking more notice of things around her. On the 23rd she was not so well—looked worse, and the head was much retracted.

On Dec. 7th half a test-tube full of clear fluid, under a moderate pressure, was withdrawn by lumbar puncture, in which were no tubercle bacilli, but a Gram-negative diplococcus, not intracellular, was seen but failed to grow on agar. On the 9th, in the evening, the child had several severe attacks of sudden head retraction and screaming, and looked very bad. The next day the retraction was more persistent and very marked. The knee-jerks were absent, and Babinski's and Kernig's signs were present on both sides. On Jan. 26th the child was lingering on in the same condition and extremely emaciated, but was taking food fairly well. The nervous signs in the legs were unchanged, but there was bronchial breathing in the first right intercostal space and high up in the axilla. The patient died with gradual extension of the lung signs on Feb. 14th.

The temperature for several days following admission was subnormal, but in the second and third weeks (i.e., in the 5th and 6th weeks of the disease) it was intermittent, only twice reaching above 100° F. This intermittent fever, with occasional remissions of subnormal or normal temperature, continued throughout the illness.

The tuberculin injections.—In the hope of developing an active immunity regular injections of tuberculin (P.T.O.) were given after tubercle bacilli had been found in the cerebro-spinal fluid. It was given in the following amounts: 0·00025 c.c. (Sept. 24th), 0·0005 c.c. (Sept. 27th), 0·001 c.c. (Oct. 1st), 0·002 c.c. (Oct. 5th), 0·003 c.c. (Oct. 10th, 0·004 c.c. (Oct. 15th), 0·005 c.c. (Oct. 18th), 0·006 c.c. (Oct. 21st), 0·007 c.c. (Oct. 25th), 0·008 c.c. (Oct. 28th), 0·009 c.c. (Nov. 1st), 0·01 c.c. (Nov. 4th), 0·02 c.c. (Nov. 9th), 0·05 c.c. (Nov. 12th), 0·08 c.c. (Nov. 15th), 0·1 c.c. (Nov. 18th), and 0·2 c.c. (on Nov. 22nd and 27th). During the course of these injections, and it was thought as a result of them, the general condition slightly improved; from being comatose the patient improved so much as to be able to notice the things going on in the ward. The first few doses seemed to have a beneficial effect in steadying the temperature, but later on the injection was frequently followed by a rise in temperature, though occasionally a rise occurred in no near relation to an injection.

Post-mortem examination.—A necropsy was performed on Feb. 15th (16 hours after death). The body was extremely emaciated. There was no increase of fluid in the pleuræ, pericardium, or peritoneum, and no gross alteration in the walls of these cavities.

The *brain* was very soft, and its cavities were distended with a moderate amount of clear fluid. There was marked hyperæmia over the whole of the pia-arachnoid membrane. There was a very slight general thickening of the pia mater, chiefly in the neighbourhood of the cortical vessels, and in several spots near arteries there were small whitish flattened areas not more than 1 mm. across, recalling both in distribution and size the appearance of miliary tubercles, but with this difference, that they were much flatter and in no case globular; some were firmly adherent to brain cortex. On the posterior part of the velum interpositum were two small (1 mm.) whitish thickenings. The pia mater over the extreme posterior part of the vermis of the cerebellum was uniformly thickened and whitish. At the base of the brain the wall of the cisterna magna showed no marked thickening. Both lateral ventricles and the fourth ventricle were extremely dilated, and the basal ganglia were very soft. The dura mater of the spinal cord was thickened over the posterior aspect of the lumbar region of the cord, and the pia mater was definitely thickened.

The *heart* showed some thickening of the edges of the mitral valve, but was otherwise normal.

The *lungs* both showed evidence of advanced broncho-pneumonia, with abscess formation. The left lung had a few patches of broncho-pneumonia in the upper lobe; the lower lobe was completely solid, and patches in the lower part were becoming purulent. The pleura over the lower lobe was thickened, and there were a few fibrous adhesions between the lobes. The pleura over the upper lobe showed thickenings in the region of the intralobular septa. The bronchial glands were enlarged and fleshy, but showed no tubercles. The right lung had broncho-pneumonia throughout. The lower lobe was completely solid, and showed moderately advanced abscess formation. The upper and middle lobes had air-containing lung in between broncho-pneumonic patches in abscess formation. The pleura was everywhere slightly thickened, and the septa of the lung were markedly so in the upper lobe near the interlobar fissure. The bronchial glands were enlarged, but not caseous.

A careful dissection of the thoracic duct revealed no lesion of its lining membrane, but two bunches of enlarged glands in the posterior mediastinum showed a very small patch of caseous matter; the substance of the glands was pale and fleshy.

The *spleen* showed slight perisplenitis in small pinhead areas and a marked thickening of the trabeculæ. The *suprarenals* were normal. The *kidneys* showed no change, except in the right, where a small area of caseation existed in one of the upper pyramids. The stomach, intestines, and pancreas were normal.

The *liver* on its anterior aspect had altogether about a dozen very small, whitish, opaque areas of thickening in the capsule. They were not more than 1 mm. across and similar, except that they did not project, to miliary tubercles. The substance of the liver was normal.

The microscopic appearance of sections.—Meningeal tubercles.—Serial sections through a portion of the brain, in the pia mater of which were tubercle-like areas, showed merely some young fibrous tissue patches adherent in some instances to the brain substance underneath; in no section could any resemblance be found to the structure of a tubercle, though in places a collection of nuclei and some cytoplasm suggested the appearance of a giant cell undergoing atrophy. The thickening on the anterior aspect of the lumbar cord consisted of granulation tissue becoming fibrous; one part showed a slight amount of disintegration of nuclei. None of these sections showed any trace of tubercle bacilli.

The lungs.—The areas showing purulent broncho-pneumonia showed numerous abscesses in which could be detected a Gram-positive diplococcus which had the shape of the pneumococcus. The lung in the most advanced stages of broncho-pneumonia was infiltrated with leucocytes. Sections of these have been examined for tubercle bacilli, but none found. The upper lobe of the right lung near the interlobar fissure—a portion which was moderately free from broncho-pneumonia—had its septa very much thickened, and the amount of fibrous tissue accompanying the vessels was increased, indicating a previous condition of inflammation. Amongst numerous sections out of these fibrotic parts two different areas showed evidence of tuberculosis. In one there was an inflammatory focus with a giant cell of the features we associate with tuberculous lesions; in the other, just under the thickened pleura, was a rounded area of fibrous elements infiltrated with round cells and polymorph leucocytes, in the centre of which lay a large mass of cytoplasm with several nuclei and some peripheral branches, the borders of which were fairly thickly covered with polymorphonuclear leucocytes. This was thought to be a tubercle with a giant cell in process of being removed by the activity of the leucocytes.

The kidneys.—The area of caseation mentioned in the post-mortem report had the usual appearance of a tuberculous lesion, and tubercle bacilli were found in it.

The liver had a very mild grade of cirrhosis well shown up by van Gieson's stain. The fibrous tissue of Glisson's capsule was distinctly increased, and there stretched from it into the liver substance net-like strands of fibrous tissue which is quite foreign to the liver of normal human beings. There was no suggestion of the tuberculous lesion anywhere in the section.

The glands.—Amongst the sections of the bronchial and mediastinal glands other than that with the caseous patch only one was found which showed a tuberculous area—a small caseous patch with epithelioid and lymph cells, but without a giant cell. In the spleen the septa were thickened, and one spot was very suspicious of a healing tuberculous lesion. The capsule was thickened by young fibrous tissue in small areas very similar to those on the meninges.

The recorded cases of healed or retrogressive miliary tuberculosis of the brain have been critically examined in a recent paper by Martin,[1] who gives the following as the conditions that must be satisfied before any such case can be diagnosed as tuberculous meningitis: (1) The discovery of the tubercle bacillus in the cerebro-spinal fluid (*a*) by the microscope, (*b*) by cultivation, or (*c*) by injection into a guinea-pig; and (2) by the post-mortem verification of healed tuberculosis of the meninges together with the presence of tuberculosis in other regions of the body.

The case here recorded satisfies two of these criteria, and we venture to record it as an undoubted case of healed tuberculous meningitis. The objection might be raised that the value of the detection of tubercle bacilli under the microscope depends on the skill of the person making the diagnosis; it may be stated, however, that he (A. G. G.) who made the diagnosis has been in the habit of making examinations of such material daily for five years in the course of his duties in relation to the clinical pathology at the Radcliffe Infirmary; and that with the great probability of a mistake in such a diagnosis being corrected at the post-mortem examination, if the case takes the usual course of the disease, the appearance of such acid-fast bacilli must be so clearly that of the tubercle bacillus that nobody could

[1] Martin: The Occurrence of the Remissions and Recovery in Tuberculous Meningitis, Brain, 1909, vol. xxxii., p. 209.

cavil at it. We think, therefore, that both from this and from the post-mortem evidence the proof is the same. Clinically the disease was tuberculous meningitis, and had been diagnosed as such by Dr. M. C. Hayward of Abingdon, who sent the child to the infirmary, and by one of us in the wards (W. T. B.) before the report on the cerebro-spinal fluid was made. The presence of lesions in the choroid is suggestive of tuberculosis, but their real nature was open to doubt.

From an examination of the literature Martin, by the application of his criteria, has been able to say that 20 undoubted cases have been recorded since 1894. Since the appearance of Martin's papers two further records have appeared, one by Allaria[2] in which a child, aged 5, had symptoms for three weeks of meningitis which slowly abated, leaving some contracture which finally passed off. The child attended school for one month, but the meningeal symptoms reappeared and death occurred in four weeks. At the necropsy there was basal meningitis, and there were many recent grey granulations on the pia mater of the base of the brain and along the Sylvian fissure, and on the vault. There was also miliary tuberculosis of the lungs, spleen, liver, and caseous peribronchial glands. Of 19 cases examined in the literature by Allaria he allows 10 to be genuine recoveries. A yet later case has been recorded by de Renzi.[3]

Oxford.

THE RELATIONSHIP BETWEEN MOVEABLE KIDNEY AND CHRONIC COLITIS.

BY J. LIDDELL, M.D. EDIN.

THE frequent association of moveable kidney and chronic colitis has been recognised by various observers, and most of them consider there is a causal relationship between the conditions. There is, however, a diversity of opinion as to the nature of this relationship, and as to the true connexion of the one to the other, Debove[1] and other observers hold the view that the nephroptosis is not only a cause of entero-colitis, but is the most frequent cause. Others, again, hold the opposite view, and consider that nephroptosis is due to colitis. As my experience of these cases has been considerable in recent years, I am venturing to deal briefly with the question, and to give my view based on the results of my observations.

The frequency with which moveable kidney occurs in cases of colitis is remarkable. Both kidneys may be moveable, but that is not often the case; more generally it is one kidney, and in a large percentage it is the right one. I have seldom seen a patient with nephroptosis who is not also affected with colitis, even in those in whom the loose kidney was attributed to an accident. The exceptions have been chiefly in cases of visceroptosis where the kidneys have become displaced along with the other viscera. Nephroptosis is a fairly common condition, and like entero-colitis it is much more common than many of the profession have yet realised. It is a troublesome complication in colitis, especially when the kidney is freely moveable and floats about the abdomen or becomes fixed by adhesions.

A question which naturally occurs is this: What causes the kidney to become loose? In considering this let us remember that the organ lies behind the peritoneum, embedded in, and chiefly supported by, a considerable amount of adipose tissue which is closely adherent to the surface of the kidney. Another point to note is that the tissue of the kidney is easily lacerated. Now when a moveable kidney is exposed it is found to be devoid, or almost devoid, of fat, so that when it becomes displaced it is apparent that it becomes separated from its enveloping mass of fat. Cases are recorded where displacement of the kidney dates from a fall, but it is impossible that it could be detached from its closely adherent envelope from such a cause only, as a force sufficient to cause such a result would produce serious damage to the kidney as well. There is no evidence of such injury in these reported cases, nor was there in any of my cases where the displaced kidney was attributed to a fall. Therefore, it is evident that previously to the accident it had become separated by some means from its attachment, and remained *in situ* until the accident displaced it.

Moveable kidney very rarely occurs in those who are well nourished and show no appreciable loss of fat. In nearly all the patients I have seen with the combined conditions there was distinct evidence of auto-intoxication due to colitis. In a large proportion there was considerable diminution of the general fat, the patients being thin and sometimes emaciated. This must have been due to a solvent effect of the toxin produced in the intestine upon the fat, or to a non-absorption of fat during digestion, or to both. The perinephric fat evidently participated in this loss; thus the organ was loosened, and gravitation and various movements caused it to descend and produce the condition we call moveable or floating kidney.

Let us next consider the effect of the loose kidney upon the intestine. Often in colitis the loose kidney by its weight displaces the intestine and so produces an entero-ptosis which in turn causes stasis of the contents, a condition which tends to keep up the colitis. Thus we can understand, should the kidney become displaced in a patient with a previously healthy intestine, how it can eventually produce colitis. First, the weight of the kidney displaces and also irritates the colon. Next, in the intestinal contents, whose passage is delayed, increased putrefactive changes take place, the products of which irritate the mucous membrane and cause catarrh of that structure. To trace the sequence of events is sometimes difficult, but my experience has led me to the conclusion that *in nearly all cases colitis precedes and causes the nephroptosis through the action of the colitic toxin on the fat* as already stated.

Many cases of colitis are unrecognised because there is no history of the voidance of mucus. As I have already mentioned in previous articles on this ailment,[2] the absence of this history is immaterial, because mucus is so often passed coated with, or embedded in, fæces as to be ordinarily unrecognisable. Should the patients have the signs and symptoms I have there described then the presence of colitis is certain.[3]

The diagnosis of moveable kidney is usually easily made unless the kidney has slipped back to its proper position at the time of the examination, and then several examinations may be necessary before we are able to determine that it exists. In all cases of colitis it is essential to ascertain if the kidneys are displaced, and if so whether they are free or are fixed by adhesions in an abnormal position.

The treatment of the two conditions may be carried on simultaneously. First as to the colitis. Briefly, my treatment consists of intestinal douches with one of the Harrogate sulphur waters, these being singularly and peculiarly efficacious in this disease. This is combined with abdominal massage and exercises given by experienced Swedish gymnasts. Then special dieting is essential. By these means digestion and nutrition are improved, the tone of the tissues is increased, also emaciated patients gain in weight, and a deposition of fat takes place. Results appear to indicate that the kidney fat is also increased.

The improvement effected by the treatment for colitis helps materially in supporting the kidney. The abdominal muscles are the natural muscular belt for supporting the abdominal organs. These muscles are developed and strengthened by this treatment, and by giving the abdominal viscera increased support tend to maintain the kidney in its proper position. Patients are sometimes advised to wear trusses or belts with pads, but the pressure of these causes atrophy of the muscles, and therefore they ought to be used only as a temporary means of treatment. The patient should be taught how to replace the kidney, and instructed to replace it always on going to bed. By thus keeping it in position the area of movement becomes contracted and not so easily traversed by the kidney. Incredible as it may seem, I have seen kidneys that could be moved quite freely from the posterior to the anterior abdominal wall, eventually become fixed in their natural position.

[2] Allaria: La Pediatria, 1909, abstr. in Brit. Med. Jour., 1909, ii., Epit. 313.
[3] R. de Renzi: Di un Caso di Meningite tubercolare seguito da Guarigione, Boll. d. clin., Milano, 1910, xxvii., 367.
[1] Debove: Presse Médicale, 1904.

[2] Liddell: Some Clinical Observations on Muco-membranous Colitis, THE LANCET, May 18th, 1907.
[3] Liddell: The Nervous Phenomena occurring in Chronic Mucous Colitis, Practitioner, March, 1911.

But should these means fail, and the prolapsed kidney cause a continuance of the colitis, the question of nephropexy has to be considered. This operation is not always successful in permanently anchoring the kidney, but when it is, improvement in the colitis usually follows, though in my experience a cure of the colitis has never resulted. In this it resembles appendicectomy where the appendicitis was the result of colitis. In such a case the diseased appendix is a source of irritation, and its removal is generally followed by an amelioration of the condition of the colon, but does not bring about a cure of the colitis. It is essential here, as it is after nephropexy, to have systematic treatment for the colitis before its cure can be effected.

Harrogate.

PERFORATING APPENDICITIS OF BILHARZIAL ORIGIN.

BY H. TEMPLE MURSELL, M.B., M.C. EDIN., F.R.C.S. EDIN.,
EXTRA HONORARY SURGEON, JOHANNESBURG HOSPITAL.

THE following case appears worthy of record, as it is the only one I am able to discover in which an appendicitis of bilharzial origin has caused perforation and has been operated upon.

The patient, a South African native about 25 years of age, from Natal, was admitted to Johannesburg Hospital suffering from an "acute abdomen" of about two and a half days' duration, the condition being diagnosed as an acute perforating appendicitis with widely spread peritonitis and pus. There was an indefinite history of abdominal pain of recurrent type extending over a considerable period, but as is usual with native patients the actual duration of symptoms, or when symptoms first arose, could not be ascertained. The abdomen

Reproduction of a water-colour sketch of the specimen.

was opened in the usual way over the region of the appendix, and a large quantity of foul-smelling pus escaped. There were no limiting adhesions and the whole pelvis seemed full of pus. In the appendix region a large moveable lump was felt attached to the cæcum. The accompanying diagram is rather smaller than the actual specimen. The lump was undoubtedly appendix and was attached to the cæcum by a short stalk of fairly healthy appendicular tissue as shown in the diagram. At the hinder part of the main mass was a perforation. The whole appendix was removed in the usual fashion, and the pus area was freely drained. The patient, in spite of his very serious condition, made an excellent recovery.

On section of the mass removed the proximal portion of the appendix was fairly healthy, showing merely catarrh. On following this proximal portion of the lumen down the walls of the organ were found enormously thickened, the thickening affecting mainly the muscular coats. A large stercolith occupied this portion of the lumen, and there was also here a perforation into the general peritoneal cavity.

The specimen was submitted to Dr. J. C. Mitchell, pathologist to the hospital. The thickening proved to be from increase of fibrous tissue, apparently of chronic inflammatory origin. In this tissue were embedded bilharzial ova, which it seems fair to assume were the primary causal agent in the inflammatory process.

My friend, Dr. George Turner, medical officer to the Witwatersrand Native Labour Association, whose opportunities for pathological investigation in South African natives is probably unrivalled, assures me that bilharzial infiltration of the appendix is not uncommon in South African natives, though he has not seen one in which such great changes have been induced as in the present instance, nor one in which perforation had occurred.

The specimen is in the Museum of the Royal College of Surgeons of England. The diagram was made from a very excellent colour drawing of the specimen by Messrs. Shiells and Ford.

THE INTRAVENOUS INJECTION OF PARALDEHYDE.

BY H. L. C. NOEL, M.R.C.S. ENG., L.R.C.P. LOND.,
HOUSE PHYSICIAN AND RESIDENT ANÆSTHETIST, LONDON HOSPITAL;
AND
H. S. SOUTTAR, M.A., M.CH. OXON., F.R.C.S. ENG.,
SURGICAL REGISTRAR, LONDON HOSPITAL.

IT has long been recognised that paraldehyde is in many ways the most perfect hypnotic we possess. In certainty of action it is unsurpassed, while its stimulating effect upon respiration and circulation and its absence of after-effects are in marked contrast to the depression, immediate and remote, produced by other hypnotics. Given by mouth its taste is a serious disadvantage, and the preliminary excitement it may sometimes cause is undesirable. It appeared to us that these defects could be largely overcome by intravenous injection, and the results of our experiments have exceeded our expectations. The hypnotic effect is the most perfect we have ever seen, being exceedingly rapid and yet devoid altogether of unsatisfactory circumstances. The patient appears both to himself and to onlookers to pass into a perfectly natural and easy sleep. Respiration deepens, the pulse is slower and fuller, the colour is absolutely unaltered. Yet if the injections be continued deep anæsthesia can be produced with great rapidity. This latter fact opens up a wide field upon which we hope shortly to make a further communication. Here we shall restrict ourselves to the use of paraldehyde intravenously as a hypnotic or as an anæsthetic for minor operations.

Paraldehyde is a colourless volatile liquid with a characteristic and unpleasant taste and smell. Its specific gravity is 0·998, it is soluble in ten volumes of water at 15° C., less soluble in hot water, and boils at 124° C. It is miscible in all proportions with ether and alcohol. Under ordinary circumstances it has no depressing effect upon the heart. Intravenously we found it to act momentarily as a depressant. This effect is transient and can be entirely eliminated by combining in the injection an equal amount of ether. The action of paraldehyde is so rapid that we preferred to retard it by dilution. We therefore mix 5 to 15 c.c. of paraldehyde with an equal amount of ether and dissolve the mixture in 150 c.c. of a cold 1 per cent. solution of sodium chloride in sterile distilled water *free from dead bacteria*, or in default of this in ordinary boiled tap water. The solution should be perfectly clear after shaking. It is placed in a sterile bottle with a rubber stopper through which pass two glass tubes. To one of these tubes bellows are attached. The other reaches to the bottom of the liquid and leads off by a long rubber tube to a fine hypodermic needle. The apparatus we have used is that devised by Fildes and McIntosh for the injection of salvarsan. The solution may

be injected cold or at a temperature not exceeding 25° C. The patient's arm being surrounded with a light tourniquet bandage, a prominent vein is selected, the skin is cleansed with ether, and the needle is inserted. A back flow of blood through the needle into a glass tube in the rubber connexion shows that the vein has been entered. The tourniquet is removed, the bellows are worked, and the fluid is steadily driven into the vein at the rate of from 30 to 60 c.c. per minute.

The following phenomena are observed. In 5 seconds the patient tastes paraldehyde. In 10 seconds it can be detected in the breath. The patient has a sensation of general warmth. In 20 seconds the patient has a sensation of floating, and perhaps of slight dizziness. In 30 seconds consciousness is disappearing. In 40 seconds unconsciousness is complete. In 60 seconds the patient is deeply unconscious. In 90 seconds the corneal reflex is absent and anæsthesia is complete. Reflex movements may, however, occur. Up to this point about 5 to 10 c.c. of paraldehyde will have been given and small operations, such as removing teeth or suturing wounds, may be performed. The drug is, however, excreted by the lungs with great rapidity, and for a lasting effect the whole 15 c.c. will usually be required.

The later effects of the drug depend largely on the amount given. With a small dose (5 c.c.) the patient passes through a short period of anæsthesia into an easy and natural sleep. The duration of this appears to depend on the condition of the patient and not on the drug, the action of which is over in perhaps 20 minutes. Thus, in a case where six teeth were removed under 10 c.c. of paraldehyde and 10 c.c. of ether, the patient was conscious in 20 minutes and had entirely recovered in half an hour. In another instance where the drug was used as a hypnotic six hours of natural sleep resulted. In both cases the patients appeared on awaking to have simply been roused from sleep. No after-effects of any kind occurred in either case.

The most striking results were seen in the case of alcoholics, both acute and chronic. One powerful labourer with a scalp wound and incipient alcoholic dementia was sleeping peacefully in 40 seconds, realising too late that anything was being done. His scalp wound was sutured without disturbance. In such cases, however, intravenous paraldehyde is too transient and should be backed up at leisure with slower drugs, such as potassium bromide and chloral, given by rectal or nasal tube, or by paraldehyde itself given in the same way or injected into the muscles. It is, however, this rapidity of excretion which gives such confidence in the use of so potent a drug intravenously. At each instant the patient exhibits the maximum effect of the dose so far given. The dosage is therefore under absolute control, and hence there is never any danger from an overdose. The moment injection ceases the effect of the drug begins to pass off as the drug itself pours out through the lungs.

We consider, therefore, the use of intravenous paraldehyde to be practically safe, and we have ventured to use it as a hypnotic in cases of grave cardiac and pulmonary disease with perfect success. We do not suggest that it can replace the slower but more lasting hypnotics, but we draw attention to it as a method by which under the most trying circumstances we have never failed to induce within 60 seconds a condition closely resembling normal sleep. We feel that such a method must have a future both in medicine and surgery.

We can find no record in the literature of the previous intravenous use of paraldehyde. We append a list of some of the more important papers on the subject of intravenous anæsthesia.

We should like to thank the staff of the London Hospital for the facilities we have been granted for the introduction of this new method.

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THE TECHNIQUE OF THE MORE EXTENSIVE ABDOMINAL OPERATIONS FOR CANCER OF THE WOMB.

BY F. J. McCANN, M.D. EDIN., F.R.C.S. ENG.,
SURGEON TO THE SAMARITAN FREE HOSPITAL FOR WOMEN, LONDON.

THE publication by Wertheim of his book entitled "Die Erweiterte Abdominale Operation bei Carcinoma Colli Uteri," based on a series of 500 cases, has given an additional stimulus, if such were needed, to those who are working to improve the operative treatment of uterine cancer. The wave of enthusiasm which spread over the continent of Europe when more extensive operative procedures by the abdominal route were first advocated seems to be gradually subsiding, and if conclusions can be drawn from recent discussions a reactionary current has begun to flow in favour of a more extensive operation by the vaginal route.

In this country, however, the abdominal route would appear to be gaining in favour, and, as its merits and safety are more appreciated, bids fair to be adopted as the method of choice in all cases of uterine cancer which are suitable for operation. Having had some experience of this operation, as well as having the privilege of observing the technique followed in Vienna, Berlin, and Budapest, I venture to record the results of this experience and observation. At the outset I wish to express my thanks for the courtesy and kindness shown to me in Vienna by Professor Wertheim and in Berlin by Professor Bumm, who gave me so many opportunities of seeing their operative technique.

When I heard Professor Wertheim's paper read at Leicester in July, 1905, two points in the technique at once struck me which could be altered with advantage; the one was the extensive stripping of the ureter as a preliminary step in the operation, and the other was the advantage which would be gained by beginning the separation of the bladder as the first step in the operation. This extensive stripping of the ureter does not increase the radical nature of the operation, and, moreover, may play a part in favouring subsequent necrosis. When I first saw Wertheim operate during the International Congress at Budapest in 1909 he had altered his technique and began the operation by separating the bladder, and did not extensively strip the ureter as the first step in the operation. The advantage of first separating the bladder is most evident where the disease is advanced, for the amount of involvement of the bladder is at once apparent, and if very extensive the operation can be stopped before much injury has been done to the pelvic contents. With these exceptions the technique as now carried out by Wertheim closely corresponds to what is described in the *British Medical Journal* for Sept. 23rd, 1905, p. 689, and in my own book.[1]

As I am now able to present the results of my experience since December, 1906, I propose to give a more detailed account of the operation and the modifications which appear to me to be of advantage. My experience is based on a series of 52 cases of cancer of the cervix, which include all the patients operated on by this method up to June, 1912. During this period I have operated by the abdominal route in 27 cases of cancer of the uterine body and only one by the vaginal route owing to the enormous amount of fat possessed by the patient. I have not operated by the vaginal route for cancer of the cervix since December, 1906.

Let me now indicate what cases of cancer of the cervix are suitable for the abdominal operation. Wertheim gives the contra-indications as advanced age, degenerated myocardium, cachexia, adiposity, and in his early work he also gave commencing carcinoma, for which cases he preferred the vaginal route. I would add to these chronic pulmonary disease.

Advanced age.—It were better to say that it is the general condition of the patient and not her actual age in years which should be the guiding factor. One of my own patients was aged 70 years, whilst others were 67, 64, and 63 years respectively, and all recovered from the operation. There are those who consider this operation should not be done in women over 60, but assuming that the general condition is good age *per se* should not be a contra-indication.

[1] Cancer of the Womb, p. 91.

Degenerated myocardium.—Where the pulse and cardiac action are weak the patient will not stand the strain of prolonged anæsthesia nor of a prolonged operation, and these are important contra-indications. In two of my fatal cases the post-mortem examination showed marked degeneration of the myocardium. Both patients were exhausted by long-continued and profuse uterine hæmorrhage before admission into the hospital. The third fatal case was due to sudden cardiac failure shortly after the completion of the operation. The patient, aged 58 years, was obese, bronchitic, and alcoholic. The operation was not unduly prolonged, and there was no excessive blood loss. She had been treated for bronchitis before the operation. No post-mortem examination was obtained. As the disease was advanced the operation was necessarily extensive. The pulse began to fail when she was let down from the Trendelenburg position.

Cachexia.—Marked cachexia, associated as it is with degeneration of the muscular fibres of the heart, renders a woman unfit for such a severe operation.

Adiposity.—Although a sufficiently long abdominal incision may render this operation possible even in those who are obese, yet extreme examples are met with where the abdominal route may have to be abandoned in favour of the vaginal route. Where such extreme degrees of fatness are encountered it is wiser not to attempt this operation, for the large masses of extraperitoneal fat surrounding the bladder and bowel completely obscure the field of operation.

Commencing carcinoma.—Why early stages of the disease should have ever been held to contra-indicate the abdominal operation is difficult to imagine, for if there be anything in the teachings of pathology it is surely that the application of the most complete operation in the early stages is most likely to furnish the best results in the future. Doubtless the high mortality attending the operation in Wertheim's first series was the determining factor in arriving at such a conclusion, but it is now proved beyond doubt that abdominal operations for early cases ought to be attended with as small a mortality as if they had been treated by a vaginal operation, and this is borne out by my own cases.

Chronic pulmonary disease.—The presence of chronic pulmonary disease as a contra-indication need not be further emphasised.

Local conditions.—Passing now to local conditions, if the pelvis is filled with hard masses or the vagina infiltrated with cancerous growth the disease is inoperable. Further, extensive involvement of the bladder with or without vesico-vaginal fistula places the disease at once in the inoperable class. During the period December, 1906, to June, 1912, there were in my own series 5 inoperable cases: (1) aged 47, with extensive involvement of the vagina and parametrium; (2) aged 65, vesico-vaginal fistula; (3) aged 50, vesico-vaginal fistula; (4) aged 69, bladder extensively invaded; and (5) aged 35, profound anæmia, cachexia, and thrombosis of veins in arms and legs. The condition of the lymphatic glands is difficult to determine even by rectal examination, and the parametrium, although felt to be thickened, may be free from cancer, whilst soft and apparently uninfiltrated parametrium may yet be cancerous as proved by Kundrat Pankow and others. A cystoscopic examination may be helpful in determining the degree of vesical involvement, prominence of the trigone being observed where invasion has occurred. The real difficulty is in settling what is a favourable case, for the operation may reveal unexpected difficulties in what might be regarded as "easy cases," whereas what was considered to be unfavourable before operation may be found subsequently to be without difficulty. For these reasons each operation is of the nature of an exploratory operation, and where the local and general conditions are suitable should certainly be advised. With increasing experience the operator will be able to deal with the difficulties which present themselves. Wertheim's operability has increased from 30 per cent. to 50 per cent. and in the last two years 61·9 per cent. He gives the following figures covering a period of 11 years: 1096 patients; 500 operated on by the abdominal route; 55 refused operation; 22 operated on by the vaginal route; 519 too advanced for operation; total operability about 50 per cent. He had no fewer than 79 exploratory laparotomies (16·4 per cent.) of which 7 died, which is a high mortality. This only serves to emphasise the great importance of deciding at once if the case is inoperable before such injury has been inflicted as will jeopardise the life of the patient. To know when to withhold the hand requires the highest surgical judgment.

Now let us turn to the technique of the abdominal operation for carcinoma of the cervix. Before submitting patients to this operation it is advisable that they should be kept in bed for at least four days or longer if the general condition is not satisfactory. During this period certain general and local means should be adopted to husband the patient's strength and to disinfect the cancerous growth if septic. The rest and appropriate feeding are beneficial, especially amongst the hospital class, and strychnine may be administered with advantage. To disinfect the cancer swabbing the vagina with a 10 vols. solution of peroxide of hydrogen is useful, and if the cancer surface is necrotic the application of pure liquid carbolic acid is beneficial.[2] I have never favoured the use of scraping and cauterisation some days before the operation. After the patient is anæsthetised the method of local preparation which I now adopt depends on the state of the cancerous growth. If it is of the proliferating type and undergoing necrosis, I scrape away the necrosed area only and cauterise with the ordinary iron cautery. Afterwards the vagina is swabbed out with a 5 per cent. solution of silver nitrate. If there be no necrosis the growth or ulcer is swabbed with this solution. The excess of solution is dried and a good-sized piece of iodoform gauze is packed into the vagina and so arranged as to admit of easy removal. Wertheim scrapes and cauterises before the anæsthetic is administered, a procedure which on account of the pain produced must increase the shock of the operation. The process of local disinfection should not take more than ten minutes, and I carry it out in the anæsthetic room, separate instruments and gloves being employed. The patient is afterwards wheeled into the operating theatre and placed in the Trendelenburg position.

The length of the abdominal incision will depend on the amount of abdominal fat, and for this reason may require to be extended one or more inches above the umbilicus, but it should always extend from the umbilicus to the symphysis pubis, care being taken to divide the structures down to this level in order to obtain free access. As soon as the abdominal cavity is opened the abdominal walls are covered by "protectors" of batiste and gauze, which are fixed in position by stitches. The intestines are carefully packed away out of the pelvis with sponges made of sterilised lint, and a rapid exploration of the pelvic contents is carried out in the following order. The region of the pelvic glands is first palpated, and if the glands are much enlarged, hard, and impossible to enucleate it is useless to proceed with the operation.

The ureters are next investigated to determine whether they are dilated as a result of compression by cancerous deposit. The bladder is now felt and the appearance of the utero-vesical pouch noted. The peritoneum covering the latter assumes a characteristic crumpled, retracted appearance as it stretches over subjacent infiltration. The rectum is similarly investigated. The cervix is finally palpated and the amount of surrounding infiltration estimated. After separation of any adhesions binding down the appendages or fundus uteri, the latter is grasped with a volsellum and pulled upwards and backwards. The peritoneum forming the utero-vesical pouch is incised transversely and the separation of the bladder begun in the middle line. For this purpose long blunted scissors should alone be employed, and by successive snips the bladder is gradually detached. If the finger or a swab be used the bladder wall may be torn, especially if at the same time it is made tense by traction on the vesical peritoneum. It is thus that the bladder is so frequently injured, for even in the presence of infiltration the great advantage of separation by scissors alone is at once apparent. When infiltration exists it may be advisable to separate at the sides first, a proceeding which I have often found useful in vaginal hysterectomy. The uterus is now pulled to one side and the round ligament divided between forceps as far out as possible; the incision in the peritoneum is then continued with scissors up to the intestine and over the ovarian vessels, which are picked up with forceps and divided. A similar incision is made on the opposite side. The ovarian vessels and round ligaments are then tied with fine linen thread. This long incision presents several advantages over Wertheim's technique. When the

[2] No vaginal examination is permitted within 48 hours before operation.

inner divided portion of the peritoneum is raised at its upper extremity the ureter is seen, no matter how fat the patient or how extensive the infiltration, and on this account the level of the ureter is determined at an early stage of the operation. The iliac glands are also brought into view and may be removed in the preliminary stage if desired; moreover, by securing the ovarian vessels without including peritoneum it facilitates the subsequent suturing. I am convinced that the ureter is frequently injured because its actual position has not been determined soon enough in the course of the operation. Its position should be ascertained early and kept constantly in view. The ureter is now separated in its pelvic portion and traced to its entrance into the parametrium. In thin subjects the ureter is easily seen through the peritoneum, and its identity can be recognised through the peristaltic movements which can be set up by stroking it with the scissors. Where the ureter enters the parametrium the "ureteric canal" is defined with the points of the scissors, and then the index finger is inserted through the canal above the ureter, thus raising the uterine vessels and the attached tissue. By blunt dissection with long forceps the tissue over the end of the finger is separated. Two pairs of forceps are now used to seize the vessels raised by the finger, and after dividing between the forceps the vessels and surrounding tissue are tied as far out as possible with fine linen thread. This manœuvre adopted by Wertheim is not always possible in the presence of marked infiltration and a considerable amount of bleeding and tearing may result. Under such circumstances it is best to pick up the vessels with two pairs of forceps, divide between, and with the scissors the vessels are isolated and dissected back close to their origin and then ligatured.[3] Having secured the vessels the ureter can then be dissected out with comparative ease.

The vesical portion of the ureter is next laid bare, and in so doing a certain amount of venous hæmorrhage requires to be controlled by forceps and subsequent ligature. Now follows a further separation of the bladder from its attachment. The other side is then dealt with in a similar manner and the rectum is next separated. This is done by catching the peritoneum of Douglas's pouch with long forceps at a suitable spot and cutting with scissors into the loose tissue intervening between the rectum and posterior vaginal wall. The incision is then extended outwards until the peritoneum posteriorly is completely divided. In so doing an artery in each utero-sacral fold will require to be caught and tied; this posterior incision is also facilitated by the long peritoneal incision already described, for the peritoneum can be held up with forceps away from the ureter. The rectum is further separated by snipping with scissors until a sufficient amount of the posterior vaginal wall is exposed. The uterus is then well pulled upwards and to one side, and a series of clamps put on the parametrial tissue from behind forwards. The first clamp is put on the sacro-uterine ligament, and the latter is divided on its uterine side, then three or four others are put on laterally until all the parametrium is divided up to the lateral wall of the vagina. The other side is treated in like manner, so that the vagina is completely freed on both sides.

It is much better to use several clamps, each holding a comparatively small amount of tissue, as this facilitates subsequent ligature and prevents undue loss of blood. Whilst applying the clamps the ureters are laterally retracted by the assistant; this is best done by a small gauze sponge held in a pair of long forceps. The gauze introduced into the vagina before the operation is now removed by an assistant. Before applying the vaginal clamp or clamps an inspection is made to see that the bladder, ureters, and rectum are sufficiently separated. The clamps are then applied and on each side a pair of hæmostatic forceps at a lower level to prevent bleeding from the vaginal angles. The vagina is cut across between the clamps and the hæmostatic forceps, and as soon as an opening is made a piece of gauze is pushed into the vagina from above in order to catch any secretion which might have escaped. The uterus, appendages, and parametrium are removed, the cancer being enclosed in a bag of vagina.

To judge from recent reports there seems to be considerable difficulty in applying the clamps, which has already led to the production of various modifications of the rectangular instrument used by Wertheim. As a matter of experience, however, if the vagina is thoroughly isolated in front, behind, and especially at the sides, there is no difficulty in putting on the clamps. It is the failure to isolate the vagina which leads to difficulty. The clamp which I now use is made on a slightly different principle, is easy of application, and is further of sufficient size to maintain the apposition of the vaginal walls. It leaves more room for cutting the vagina at each side above the position occupied by the lateral hæmostatic forceps.

Before the vagina is opened the operation area should be covered with gauze or sponges to prevent infection should cancerous particles or discharge escape through the clamp slipping. A suture is placed in the centre of the posterior vaginal wall and used to hold up the vagina. Mattress sutures are inserted to replace the hæmostatic forceps on the vaginal angles. The parametric clamps are then replaced by ligatures applied on a curved needle held by a long needle-holder. Any other bleeding points are secured and tied. The lymphatic glands are next removed and the iliac vessels laid bare. In so doing care must be taken not in injure the iliac vein. The glands should be carefully separated from the vessels by blunt-pointed scissors, and after their blood-supply has been ligatured they should be removed. The glands should be sought in the following order: first along the common iliac artery, then the external iliac as far as the femoral ring, then in the interval between the external and internal iliac arteries—i.e., the bifurcation of the common iliac, following down with the finger to the region of the obturator foramen. Here glands may be formed surrounding the obturator nerve, and when extirpated the nerve is laid bare. Then finally the sacral glands are sought for and removed. During the removal of the glands the iliac vessels may be injured, and ligature or resection of a portion of the vessel may be required. In one of my own cases the glandular mass was so incorporated with the external iliac vein that I did not think it wise to attempt its removal. Wertheim has had a similar experience in two of his cases.

Considerable enlargement of the sacral glands with cancerous deposit was present in my second fatal case, one of the glands being enlarged to the size of a walnut. A careful search is finally made for any bleeding points, which are at once secured. A fresh piece of gauze is pushed into the vagina and arranged so that it does not come in contact with the ureters. The peritoneum is united by means of catgut, thus completely covering in the pelvic cavity. The lateral angles of the peritoneal incision are united first and the remainder by interrupted mattress sutures. Interrupted sutures are used because there is a certain advantage over a continuous suture should infection result, and mattress sutures because of their security. The accurate closure of the peritoneum is most important in this operation, as it tends to limit infection to the pelvic cavity, more especially in the presence of any injury to the bladder, ureters, or rectum, or subsequent necrosis. The pelvic colon is spread over the pelvic cavity, and the patient is then lowered into the horizontal position. The omentum is drawn down over the intestines and the abdominal wound sutured. In fat women and in old women where there is a risk of infection of the abdominal wound it is wiser to use through and through sutures.[4] The peritoneum is first united with a continuous catgut suture; through-and-through silkworm gut sutures are next inserted, avoiding the peritoneum, and the fascia and muscle are then united with a continuous catgut suture. The silkworm gut sutures are tied and the skin is further united with Michel's clips. In younger women who are not unduly fat the through-and-through sutures need not be used.

It is further of importance to take care that the cavum Retzii is obliterated by picking up the deep tissues with the needle in order to prevent pocketing, for it is not uncommon to find serum or sero-pus collecting in the lower angle of the wound. Indeed, the infection of the abdominal wound, which still appears to be so frequent after this operation, has its starting-point in the cellular tissue and tracks in an upward direction to the lower angle of the abdominal wound. This is prevented by protecting the cellular tissue during the incision of the vagina and subsequent removal of the uterus, by protecting the abdominal walls, and by draining the cellular tissue wher the

[3] The paracervical glands are often seen enlarged and are removed at this stage.

[4] The abdominal wound is cleansed with saline solution.

hæmostasis has not been complete. This will be again referred to when discussing the after-treatment.

The technique already described differs in several important details from that adopted by Wertheim and others, and is the outcome of the personal experience of the writer. Thus Wertheim stands on the left side of the patient and makes his incision from the symphysis to the navel. Other operators change sides during the operation, believing that this offers special advantages. I have always operated standing on the right side of the patient and complete the operation in this position. Confusion results through changing position during an operation without, in my judgment, any compensating advantage. Wertheim and others ligature the infundibulo-pelvic ligament as a preliminary stage in the operation, but if the method here suggested of dividing the round ligaments and prolonging the incision up to the intestine be adopted its advantages are so pronounced that I feel sure it will be adopted more and more in the future. The ureter in the Wertheim technique is sought by opening up the layers of the broad ligament after trying the infundibulo-pelvic ligament, a silk ligature passed on a Deschamps's needle being used and the tissue tied *en masse*. This method Wertheim has adopted from Bumm and Krönig, and he has used it from his 227th case onwards. During the ligation of the infundibulo-pelvic ligament in one of his cases the ureter was inadvertently tied and divided. Such an accident is impossible if the technique which I advocate is adopted. The aim in pelvic surgery ought to be to isolate vessels and ligature without encompassing surrounding masses of tissue. It is thus possible to use thin material for ligatures and so diminish the bulk of what is left behind in the pelvis. Wertheim does not use large retractors nor any protection for the abdominal wall. Instead the peritoneum is stitched to the skin of the abdomen with three or four silk sutures. He does not use gloves during the operation nor a mask. Gloves are only worn during the preliminary cauterisation. His assistants wear caps during the operation.

All the ligatures and sutures Wertheim uses are of silk, and silk is also used for suturing the vagina, being passed from the mucosal to the peritoneal surface. Such sutures must slough out and ultimately be discharged. Iodoform gauze is used for drainage, narrow short strips being inserted which are removed piece by piece from the fourth or fifth day until the removal is completed on the eighth or ninth day. Now this must favour septic infection, for as a general rule no gauze should be left longer than 48 hours in the vagina, as it becomes not only a source of irritation but of infection, and besides it prevents the natural process of healing by coaptation. Indeed, where hæmostasis is accurate no gauze is required, if not gauze should be inserted only for 48 hours. Further, the occurrence of cystitis would appear to be favoured by the retention of gauze in the pelvis, and when once the cellular tissue is infected it tends to spread by the side of the bladder to the cavum Retzii and the abdominal wall. I am firmly convinced that improvement in all these details of technique will lead to even better results than those furnished by Wertheim.

During the performance of this operation certain accidental complications may require to be combated, the most frequent being injuries to the ureter, the bladder, and the rectum.

The ureter.—Here let me again insist on what should be the leading axiom in this operation, viz., *define the ureters at an early stage and keep them constantly in view.* Ureteric injuries are much too frequent, and, indeed, a ureteral fistula is too often the only result of a prolonged operation bravely borne but useless as a means of alleviating the disease. Such results discredit surgery, disappoint the unfortunate patients, and tend to influence the public mind unfavourably against operations for uterine cancer. It is better to give up the operation than reward the patient's faith and confidence by the establishment of a ureteral fistula. If the ureter has been inadvertently cut, what is to be done? The renal end should be at once clamped by means of a pair of spring forceps covered with rubber and the vesical end accurately ligatured. Where there has been long-standing compression of the ureter by cancerous infiltration the renal end may be ligatured in the hope that subsequent atrophy of the corresponding kidney will follow. This, however, presupposes that the other kidney is functionally active, and has for this reason an element of danger.

Various suggestions have been made from time to time for dealing with ureters divided during the operation, but the two methods which appear to me to be the best are those of Mr. Harold Stiles and Dr. Latzko, of Vienna. Dr. Latzko was kind enough to demonstrate his method to me during my visit to Vienna, but on reading the method suggested by Mr. Stiles, and published in *Surgery, Gynæcology, and Obstetrics* for August, 1911, p. 127, and applied by him in implanting the ureters into the pelvic colon in cases of extroversion of the bladder, it occurred to me that his method would be most valuable and one I would certainly adopt if necessary. In brief, the method of ureteral implantation adopted by Stiles is based on Witzel's plan of gastrostomy. A small opening would require to be made in the bladder wall, and into this opening the end of the cut ureter is introduced. A catgut stitch passed on a curved needle is inserted through the ureteral wall on each side before its introduction into the bladder, and the suture is passed through the bladder wall from within outwards and tied, the end of the ureter being meanwhile gently insinuated into the bladder opening by means of a probe. The ureter is then buried in the bladder wall. This is accomplished by a series of interrupted sutures beginning three-quarters of an inch below the ureteric junction and continuing for one inch along the ureter, the stitches in the latter position taking up the ureteric wall during their transit. This method provides against the all-important element of tension on the ureter, which is the cause of the majority of the failures in this operation.

In Latzko's method the tension is lessened by uniting the bladder close to the ureteric junction to the stump of the infundibulo-pelvic ligament. The ureter is dropped into an opening made in the bladder and pulled through by a pair of forceps introduced into the bladder through the urethra. For this method Dr. Latzko claims good results, but it is surgically inferior in my opinion to the method of Stiles. Where the injury is high up in the course of the ureter it is obvious that neither of these methods is applicable, and excision of the corresponding kidney would probably be the best treatment. It has been suggested that in advanced disease the pelvic portions of the ureters should be excised, but when this is necessary probably operation would be contra-indicated on other grounds. The ureters appear to resist for some time the cancerous invasion, for when resected they have been proved microscopically to be free, although embedded in cancerous infiltration.

Apart from actual injury at the operation, subsequent necrosis of the ureter may occur during convalescence followed by the formation of a fistula. To prevent this it is important to preserve the vascular network which surrounds the ureter and to take care during the operation that the ureter is not bruised or clamped, and also that it is not separated from its bed to a greater extent than is absolutely necessary. This is also provided against by the long peritoneal incision which has been described, and which renders the isolation and separation of the pelvic portion of the ureter easier. Wertheim reports 33 cases of ureteric fistula during convalescence, and in my own series there was only one, and that subsequently closed. The retention of gauze drains with the subsequent infection probably plays an important part in the causation of these fistulæ. Wertheim's series developed from the seventeenth to the nineteenth day after operation, one on the twenty-first day, and another on the thirtieth day. The usual course appears to be the formation of a purulent collection which bursts into the vagina, the mixture of pus and urine being peculiarly offensive, and later urine alone runs away. Spontaneous healing may result, or caustic applications may require to be used and have been followed by healing. In the event of the fistula persisting operation will be required.

The bladder.—The importance of using scissors in the detachment of the bladder has been already emphasised, but when infiltration is pronounced the muscular wall may be skimmed off the underlying greyish-white mucosa. When this occurs it is necessary to reinforce the bladder wall by a series of interrupted catgut sutures passed through the muscular wall and avoiding the mucosa. Should an opening be made into the bladder it should be immediately sutured, using at least two layers of interrupted catgut sutures which do not include the mucosa. If the tear has ragged edges it is best to resect the portion of bladder wall so affected in order to promote accurate union. The anterior vaginal

wall may be used as a second line of defence, and the bladder above the sutured area can be stitched to it. A vesical fistula may form during convalescence when the bladder has been injured or subsequently to infection in the pelvic cellular tissue, but if care is taken during the operation, especially to reinforce any area in the bladder which has been thinned, the chances of the later development of a fistula are reduced to a minimum. When a fistula has developed it may close spontaneously or a subsequent operation may be required.

Cystitis.—Owing to the extensive separation of the bladder which is requisite in all these operations a certain amount of post-operative paresis is present in every case, which is evidenced clinically by incontinence of urine. This is due to the inability to empty the bladder effectually, with the result that residual urine remains, and becoming infected cystitis follows. Indeed, the function of the bladder may not be completely regained until the patient leaves her bed. In order to prevent post-operative cystitis it is imperative that regular catheterisation be employed from the first day onwards every four hours, so that urine is not allowed to accumulate in the bladder, and that it is on each occasion completely emptied. Infection spreading to the bladder from the cellular tissue would appear to play an important part in the causation of cystitis, and where this is diminished or guarded against, and where regular catheterisation is employed, cystitis becomes less frequent. A good example is afforded by one of my own cases, where the anterior vaginal wall was removed close to the external orifice of the urethra and the posterior vaginal wall in its upper half. As a result of regular catheterisation and early removal of the gauze the patient recovered without any cystitis. A severe example was met with in one of my private cases, where there was superadded a gonococcal infection which increased the severity and caused much suffering and distress to the unfortunate patient. By regular catheterisation and washing out of the bladder the disease was ultimately cured. Since adopting the use of the catheter every four hours it is in my experience the exception to encounter severe cystitis after this operation.

Rectum.—There is usually not the same difficulty encountered in the separation of the rectum from the vagina unless the disease is advanced. Under such circumstances the pouch of Douglas may be obliterated and the rectum be closely adherent to the posterior wall of the vagina. When this occurs the bowel may be opened. The bowel may be injured in putting on the vaginal clamps unless care is taken to see that the vagina is completely separated. Should such an accident happen the rectum should be at once repaired by sutures. The rectum was opened in one of my early cases and was closed by sutures and healed completely. If a fistula subsequently develops it frequently heals spontaneously (Wertheim), whilst necrosis of the rectal wall followed by fistula during convalescence is seldom encountered.

Secondary hæmorrhage.—So far it has been my good fortune not to have met with a case of secondary hæmorrhage, but this complication has been already recorded in the practice of others, including Wertheim. Accurate hæmostasis is of prime importance in all operations for malignant disease, and it is necessary to be sure that no oozing surface is left before closing the peritoneum. Hæmorrhage, however, may occur some days after operation from the vaginal wall, from the cellular tissue as a consequence of sloughing or necrotic changes, or, as in one of Wertheim's cases, from the left internal iliac vein which had been torn during removal of lymphatic glands. The use of parametric clamps is of great importance in the thorough arrest of hæmorrhage, especially the venous bleeding which is met with at the lateral walls of the pelvis under the ureters. Wertheim had operated on 97 cases before he adopted the routine use of parametric clamps. Ligature of the internal iliac artery has been employed as a method of preventive hæmostasis, but on the whole the results do not appear to be satisfactory. It is, however, a method which may be required in an emergency, and for this reason it is well to be provided with an aneurysm needle. I have on two occasions found it necessary to ligature the internal iliac artery.

Abdominal wound.—One of the most frequent complications is infection of the abdominal wound. This usually begins at the lower angle and spreads upwards. The purulent discharge has a characteristic offensive odour similar to that from a necrosing cancer. Infection of the abdominal wound can be prevented, and since I have adopted the precautions which will be mentioned later the wounds have healed by first intention. This infection is frequently a spreading infection from the cellular tissue and is favoured by undue handling, bruising, or injury to the abdominal walls. It is thus that the use of large, heavy retractors is harmful. A light retractor of the Gosset pattern is very useful, and in addition the abdominal walls should be protected by some suitable material stitched in position. Care should also be taken to obliterate any dead space at the lower angle of the wound whilst stitching the abdominal incision. Moreover, the disinfection of the cancer and the use of the vaginal clamps minimise the chances of infection from this source, whilst the early removal of any gauze drain, and careful technique, lessen the risk of subsequent infection from the cellular tissue.

Where extensive cavities are left laterally in the pelvis, Amann and Latzko have drained through the ischio-rectal fossæ. When pus collects under the peritoneum Wertheim recommends its evacuation by the passage of the finger through the vagina, and repeated if necessary daily, followed by subsequent swabbing with tincture of iodine. In three cases he found it necessary to incise above Poupart's ligament, close to the anterior superior iliac spine, and introduce a drainage tube downwards to the vagina. Indeed, Wertheim makes it a rule in all cases where fever or pain or secondary bleeding points to a disturbance in the healing of the cellular tissue, to make a digital exploration, and also where there is a suspicion of a ureteral fistula. Where a ureteral fistula is established daily applications of tincture of iodine are used to keep the fistulous opening clean.

Various other methods of drainage have been adopted by different operators. Some drain from above as well as below. Others, following Bumm, unite the vesical peritoneum to the anterior vaginal wall and the rectal peritoneum to the posterior vaginal wall. After closing the peritoneum laterally the pelvis is filled with vioform gauze pressed down tightly to obliterate dead spaces and the ends pushed into the vagina. Veil, on the other hand, leaves the lateral portions of connective tissue uncovered by peritoneum in the neighbourhood of the ureters, in order to prevent accumulation of secretion under the peritoneum. A careful antiseptic technique is the great desideratum, for without it many complications may arise.

Mortality of the operation.—Wertheim in his 500 completed operations had 93 deaths—18·6 per cent. His figures show that with increasing practice and experience his results have improved. Thus, in the first 100 operations, 30 deaths; in the second 100 operations, 22 deaths; in the third 100 operations, 17 deaths; in the fourth 100 operations, 9 deaths; and in the fifth 100 operations, 15 deaths; total, 93 deaths. The principal causes of death were: peritonitis, 33 cases; heart failure and cachexia, 22 cases; pyelonephritis, 9 cases; pyæmia, 3 cases; embolism of the pulmonary artery, 4 cases; ileus, 3 cases; and secondary hæmorrhage, 2 cases. Out of 19 of the 39 cases of peritonitis in which the supposed source of infection could be determined, in 5 it was the cellular tissue, in 4 it was the abdominal wound, in 1 it was second laparotomy for a swab, in 1 it was rupture of pyosalpinx, in 1 it was rupture of pyometra, and in 1 it was tearing out of implanted ureter. In 6 cases infection was supposed to come from the cancerous growth: 3 before the use of the vaginal clamps; 1, vagina cut before the application of the clamp (cancer not previously disinfected); 1, tearing of a carcinomatous cavity not previously prepared; and 1, tearing of a previously prepared cancerous cavity.

The second important group of fatal cases in this series is due to what are termed "heart deaths." In many cancer patients, especially those with advanced disease, pain, loss of blood, and septic discharges have exerted such a deleterious effect on the general condition that the state of the heart and circulation is far from satisfactory. For this reason they do not bear prolonged anæsthesia, and still less do they bear further loss of blood. Rapidity in operating consistent with thoroughness is of great importance as well as accurate hæmostasis. Indeed, the whole operation should be carried out with a trifling amount of blood loss. You cannot foretell the amount of blood loss a given individual will stand, nor can you foretell the moment when danger begins, for cancer patients

bear blood loss badly, and preventive hæmostasis is essential. Such deaths are frequently classed under "shock," which may act as a salve to the conscience, but hæmorrhage is the more probable explanation. I do not say that pulling, tearing, and rough handling do not lead to the condition known as "shock," but after these operations the additional factor—viz., hæmorrhage—is more important, and the more surely and quickly this is arrested the better will be the after-results. On the other hand, it is remarkable how such a prolonged trial is borne by those already weakened by hæmorrhage and poisoned by toxins. In two of the fatal cases in my own series the women were already weakened by long-continued hæmorrhage, and were, indeed, cases in which the operation might be said to be contra-indicated, but I considered it advisable to risk an operation. The latest statistics published by Döderlein show a mortality of 18·3 per cent., and those of Bumm in 131 cases, 21 per cent. Sepsis is still the most important cause of death, and with improvements in technique must be gradually eliminated.

The mortality will remain at a high level if too advanced cases are subjected to operation, and the hope of the future lies not in a more extensive operation for advanced cases, the only result of which would be to increase the mortality, but in an extensive operation undertaken during the early stage of the disease. In this way, and in this way only, will the after-results be improved and a higher percentage of cures obtained.

After-results.—The value of any operative procedure undertaken for malignant disease must stand or fall according to the after-results obtained. The anxious patient and her friends desire to know what are the future prospects after having undergone such a severe operation. In this country, owing to the short period of time during which more extensive operations have been adopted in the treatment of cancer of the cervix uteri, the statistics available are of too recent date to be of value if they are to conform to what is recognised as a suitable limit—viz., the five-year test. That is to say, if the patient remains free from recurrence for five years a cure is claimed. Needless to say, numerous cases are on record where the disease has reappeared after five years, but such a rule may be adopted with advantage for statistical purposes.[1] I am fully conscious of the fact that my own cases are of too recent date to be of value as a contribution to the study of after-results; my object, however, being rather to describe in detail the technique, dangers, and complications of the operation, and to make them available for English readers. Wertheim can undoubtedly claim supremacy owing to the fact that he has already been able to follow up the after-histories of no less than 250 women for a period of at least five years. The figures are obtained from a series of 607 women with cancer of the cervix uteri. Of these, three died from intercurrent diseases and 28 refused operation (607 − 3 − 28 = 576). Of these 576, 106 remained free from recurrence after five years, the percentage of what he terms "absolute cases" being 18·4. The most recent statistics furnished by Döderlein give a percentage of 16·2. Out of the first 25 in my own series, beginning December, 1906, recurrence was noted in 11, whilst 14 have remained free from recurrence for a period varying from five years to two years and three months.

Recurrence is noted most frequently in the region of the iliac glands, and in the early stages may be difficult to determine by vaginal and rectal examination. Cachexia and persistent localised pain are the clinical manifestations which are suggestive of recurrent disease. Recurrence in the scar in the vaginal roof is found only in a minority of cases, which is in strong contradistinction to what is so frequent after simple vaginal hysterectomy. Wertheim draws attention to the fact that the scar in the vaginal roof is often of considerable thickness, and on this account may be mistaken for recurrent disease. When a definite local recurrence is detected it may be removed, but the ultimate result is doubtful, and indeed, the more radical the original operation the less hopeful is any attempt at dealing with recurrence. I have several times excised localised recurrent disease after vaginal hysterectomy, but the results have not been encouraging.

Careful technique diminishes the chances of implantation of cancer cells, "impfrecedive," during the operation, which has been so frequently held to explain many cases of recurrence after vaginal hysterectomy. And it is here that the danger of previous curetting is pronounced, for in the presence of advanced disease the scraping may have so thinned the cervical walls that they tear during the operation, permitting the escape of cancerous material. The use of well-fitting vaginal clamps and gauze introduced into the vagina as soon as it is opened are important precautions to guard against cancer infection.

Amongst the cases narrated by Wertheim as being free from recurrence after five years, in 3 the rectal wall was stated to be involved, in 6 the bladder wall was so firmly fixed that its detachment was accomplished with considerable difficulty, and in 7 cases the parametrium was so infiltrated that during its removal the impression was obtained that cancerous material had been left behind. Wertheim further points out that the portio carcinoma frequently recurs as rapidly after operation as the cervix carcinoma. In my book on "Cancer of the Womb," p. 143, I drew attention to this important fact, which is contrary to what is generally held by writers on this subject, but my own experience completely confirms Wertheim's opinion. The age of the patient, the consistence of the growth, and the histological characters are further of importance. From his statistics Wertheim comes to the conclusion that youth is favourable, an opinion which will not be generally accepted as it is contrary to what is known regarding cancer in other regions of the body. It is the type of growth rather than the age which is the important factor, and in youth rapidly growing types are the rule. Probably a more thorough operation undertaken at an earlier stage and when the condition of the patient was good is the explanation in Wertheim's cases.

It is further interesting to note that the squamous carcinomata predominated, only about 5 per cent. being columnar, and that what are regarded as the more benign forms with typical squamous structure were not infrequently associated with glandular involvement, whilst with the polymorpho-cellular or anaplastic tumours the glands were free from cancer. This malignant nature of the squamous carcinoma I have also referred to in my book, an opinion to which exception was taken by several of my critics.

The influence of pregnancy as a factor in giving a prognosis does not appear to be of importance. It is the type of the disease which requires consideration, as the available figures do not indicate that during pregnancy or the puerperium cancer grows rapidly. In the six cases recorded by Wertheim no glands were found. One died 14 days after operation from pulmonary embolism. Of the remaining five, four were free from recurrence after five years. One case is mentioned associated with extra-uterine pregnancy in which no glands were found and the patient remained free from recurrence.

Glandular involvement.—A very unfavourable prognosis must be given when the lymphatic glands are found to be invaded, not only in advanced cases, but where the primary growth is in an early stage in its development. What do Wertheim's figures tell us? Out of his first 250 cases 62—i.e., nearly 25 per cent.—had carcinomatous glands. Of these 62, 20 died from the operation and one from intercurrent disease. But out of the remaining 41 *only five* remained free from recurrence after five years, whilst of 142 cases without glandular invasion 100 remained free from recurrence. In other words, 87·8 per cent. of the cases with cancerous glands and 29·5 per cent. without cancerous glands exhibit recurrence. Further, in Wertheim's second series of 250 cases cancerous glands were found in 25 per cent. These figures correspond to what has been already given by other authors—e.g., Hocheisen, 27 per cent., Döderlein 22·8 per cent., and Zweifel 24 per cent.; Bonnet, on the other hand, gives 51 per cent. and Rosthorn 57·7 per cent. In all five cases remaining free from recurrence only one or a single isolated group of lymph glands was cancerous. One was associated with a columnar cancer and four with a squamous.

Certain interesting observations have been made by Wertheim and others on the occurrence of tubular formations in the glands found in cancer cases. These tubuli,

[1] Aulhorn (Archiv für Gynäkologie, Band xcii.) gives the results from Zweifel's Klinik, which was one of the first to adopt the more extensive abdominal operation, as follows: 255 patients, 115 operations, 11 fatal cases. Primary mortality, 9·5 per cent.; 20·46 per cent. remained free from recurrence after five years.

which occurred in 11 per cent. of the cases, were at first supposed to be Wolffian in origin, but control observations made on glands from non-cancerous cases showed that they were absent in the latter. It is thought that they are the result of inflammatory changes and may precede the development of carcinoma, a certain latent period intervening. To further decide the question the cases with little or no swelling of the cancer-free lymphatic glands and those with enlarged cancer-free glands were collected, but no appreciable difference in the frequency of recurrence was obtained. Thus 23 cases with enlarged glands gave 26 per cent. recurrence, whilst out of 11 cases where little or no enlargement was present, 30 per cent. recurrence was noted. There is considerable difficulty in a complete extirpation of the glands, for small glands deeply situated and already infected may be overlooked during operation, which explains the frequency of recurrence in the position of the iliac glands, and generally on the side where the infected glands were most numerous. However, the results after gland extirpation in Wertheim's second series are stated to be better, and it is in this direction that improvement may be expected when a more thorough clearance is effected. Excluding cases not yet two years subsequent to operation in his second 250, there were 44 with cancerous glands. Of these 3 died from the operation, 1 died from intercurrent disease; among the remaining 40, 17 have remained free from recurrence—i.e., 42·5 per cent. (3 being observed more than four years, 5 more than five years, and 9 more than two years); whilst of the corresponding 41 cases in the first 250, only 12 remained free from recurrence after two years—i.e., 29·2 per cent.

The Superiority of the Abdominal over the Vaginal Route.

In Vienna at the present time it is interesting to find in one *frauenklinik* Wertheim and his pupils performing the abdominal operation and extolling its superiority, whilst in the neighbouring *klinik* Schauta and his pupils are equally enthusiastic concerning the more extensive vaginal operation, the so-called Schuchardt-Schauta operation. There can be no doubt of the great superiority of the latter over simple vaginal hysterectomy, and Staude claims to have an operability of 72·3 per cent. and 23 per cent. cured. In the compilation of cancer statistics the nature of the cases as to the extent of the disease and condition of the patient is so important that it is possible for an operator to have a run of favourable cases and so furnish figures which are correspondingly good. After simple vaginal hysterectomy the best results give 10 per cent. of cures, whereas the percentage of cures after Schauta's operation calculated according to Winter's method is 12·6 per cent. The modern patient afflicted with uterine cancer has therefore to choose between a vaginal operation whose mortality is about 10 per cent., and an abdominal operation whose mortality is about double, but after it the prospect of cure is twice as great.

Knowing the facts and the prospects, I feel sure the patient would choose the abdominal operation. By the abdominal method a thorough inspection of the pelvic contents is possible and a clean and neat operation can be carried out. Not only is the extirpation of glands possible, but the parametrium can be more thoroughly excised. As Wertheim wisely observes, a few grammes more or less of parametrium removed does not make so much difference in many cases. The abdominal route still possesses many more advantages. The ureters can be more thoroughly isolated and ureteral injuries are more easily recognised and remedied. The injuries to neighbouring organs are less during the abdominal method and the chances of cancerous infection are reduced to a minimum through careful technique, especially the use of vaginal clamps. After the more extensive vaginal operation recurrence in the vaginal incisions is not so rare. The separability of the organs is easier from above and can be carried out with great exactness; whilst in the presence of infiltration the ureter can be more easily detached and the infiltrated lower portion of broad ligament containing the principal lymphatics can be more easily excised. When mortality is again considered Wertheim asserts that in his last 200 cases the mortality was only 11·5 per cent., and that he had runs of 20 and 30 cases without a death. My own series of 41 cases with two deaths serves to confirm the view that the mortality in suitable cases will soon be not greater than that after the vaginal method. Schauta gives his mortality as 10·7 per cent. and Staude 20 per cent. The large wounds inflicted during the more extensive vaginal operation tend to become infected, disturb convalescence, and may produce fatal results. Such effects are known to be not uncommon in the abdominal wall after the extensive transverse incision adopted by Mackenrodt and others. And when the relative difficulty of the operations is considered, that of the vaginal route is undoubtedly greater. A more thorough extirpation of the lymphatic glands should not increase the mortality of the abdominal method in suitable cases. Where, however, adhesion to important vessels is encountered, serious or even fatal hæmorrhage may ensue. Such cases are fortunately exceptional.

Complete extirpation of the pelvic glands is not possible in the living subject, and hence it is that Wertheim and others only deal with glands already enlarged. Thus it seems probable that the glands may in certain cases be able to kill cancerous material in their substance, otherwise it becomes impossible to harmonise the results of pathological research with clinical experience. Still, it is to a more thorough extirpation of lymphatic glands that we must look in the future development of the abdominal operation, for surely the results recorded by Wertheim clearly point in this direction, and it would appear that the more thoroughly this is carried out in suitable cases the more likely are the permanent results to be improved. The vaginal operation, whether simple vaginal hysterectomy or the more extensive operation now advocated, is an unscientific procedure which I feel sure will be gradually abandoned in the treatment of uterine cancer. The only reason for clinging to this operation is the question of mortality, but as the abdominal operation becomes more frequently adopted and its technique mastered, the higher mortality will be gradually reduced, and it will become the method of choice in all suitable cases. The hope of the future lies in the application of a more thorough and extensive operation in the early stages of the disease.

The surgical treatment of uterine cancer is passing through the same phases of transformation as the surgical treatment of mammary cancer; and what surgeon is there to-day worthy of the name who would in an early mammary cancer be content with performing the old operation of removing the breast alone. It was the genius of Mitchell Banks that pointed the way to the improvement of the operative treatment of mammary cancer. Let us then follow his lead and apply the same principles to cancer of the uterus.

Much that is new in the natural history of uterine cancer has been taught us through the abdominal operation, and one outstanding fact is the futility of the vaginal method in many cases. Our knowledge of the lymphatic invasion, of the involvement of the parametrium and surrounding organs has been increased and rendered more definite, whilst not the least in importance is the fact that such an extensive operation can be carried out with success. It may truly be said that its success stimulated the advocates of the vaginal method to further efforts and the more extensive vaginal operation is the direct outcome of these. Further, it has exposed the fallacy underlying what were hitherto regarded as cases suitable for the vaginal method—namely, where the uterus was mobile and the disease apparently confined to that organ—by the demonstration of the important fact that soft parametrium may be infiltrated with cancer, whilst hard apparently infiltrated parametrium may be cancer free. The type of the cancer has been held by some to justify a choice of operation. Thus rapidly spreading types leading to early parametrial involvement are regarded as most suitable for an abdominal operation, whilst slow growing types should be treated by the vaginal method. At the expense of being accused of repetition I must again insist that suitable cases only should be chosen for the abdominal operation. In this way the confidence of the public will be restored, and patients will resort to surgical treatment at an earlier stage with the confident hope that cure or at least a lengthened period of amelioration will be the reward.

The Technique of the Abdominal Operation for Cancer of the Body of the Uterus.

It has been frequently alleged that the results of operation for uterine cancer are untrustworthy through the inclusion of cases of cancer of the body of the uterus in statistical lists, for it is a matter of common knowledge that

in this special type of cancer the post-operative results are better than in those of cancer of the cervix. For this reason I shall describe the technique of the operative treatment of the body and the results which may be expected to follow separately from those of cancer of the cervix. Let me say at once that, except in a few instances, all examples of carcinoma corporis should be treated by abdominal hysterectomy. I am fully conscious of the fact that this opinion is not held by Wertheim, or, indeed, by many continental authorities, as it appears to be the prevailing fashion to prefer the vaginal route in this disease. The abdominal route, however, presents many advantages. A complete inspection can be obtained of the pelvic contents, and in addition it is at once apparent if secondary growths in the ovaries or other pelvic organs exist. Moreover, in advanced cases the extent to which the disease has spread becomes manifest, for in these the intestine becoming adherent to the uterus may exhibit signs of cancerous invasion, or secondary deposits may be found in the lumbar glands or in other situations in the abdominal cavity. By the abdominal route a neat aseptic operation may be performed where the risks of cancer implantation or septic infection are reduced to a minimum.

The vaginal route is preferred by its advocates for two main reasons. Firstly, because it is characteristic of the disease that it is confined to the uterus for a lengthened period—in other words, it is said to be more chronic than when the cervix is attached. Secondly, that glandular invasion is met with only in the late stages. Thus Döderlein in 24 corporeal cancers found cancerous glands in 4 cases (1 inguinal, 1 iliac, and 2 lumbar). The disease had, however, in all 4 penetrated beyond the uterus. Krönig in 4 early corporeal cancers found only once an enlarged iliac gland which was free from cancer. I have made in my own cases a systematic search for glands and in 1 only (an advanced case) were the iliac glands enlarged, and on examination they were proved to be non-cancerous. This, however, does not favour the vaginal route, because it is only by actual inspection that the state of the glands can be determined, and this is impossible by the vaginal operation.

There is an undoubted risk of cancer infection when the operation is undertaken by the vaginal method, the uterus is so apt to be cut or torn during its removal and thus allow cancer cells or septic discharge to contaminate the wounded area. In addition it is so often necessary to make unilateral or bilateral incisions in the vaginal wall as the patients are frequently elderly virgins or nulliparous women that additional risk is thereby added. By the abdominal route the uterus may be held up by the appendages or round ligaments, or a special pair of ring forceps can be used in order to prevent tearing of the uterine tissue, whilst the escape of the uterine contents can be guarded against in the manner to be described. Although the chronicity of the disease is urged as an important reason for adopting the vaginal route, this does not apply to all examples of cancer of the uterine body, for in some which I have observed the course of the disease has been extremely rapid.

Cases Suitable for the Abdominal Operation.—Age.—53 is the age at which cancer of the uterine body is most common, and on account of the age of the majority of the patients the vaginal route is preferred. But, as already stated, when speaking of cervical disease, age *per se* is not so important as the general condition of the patient, and in my own series the following were aged 54 or over: 54 years, 2 cases; 56 years, 5 cases; 58 years, 2 cases; 60 years, 1 case; 63 years, 1 case; 65 years, 2 cases; and 68 years, 1 case. Elderly patients bear the abdominal operation well, provided hæmostasis is accurate and the operation not unduly prolonged.

Cachexia.—This is a contra-indication if well marked, but as a matter of practical experience the subjects of corporeal cancer are usually well nourished and maintain their standard of nutrition for a lengthened period. Indeed, they may even gain in weight during the early stages of the disease. It thus comes to pass that *adiposity* is a more frequent contra-indication, and it was for this reason that I was compelled to perform vaginal hysterectomy in one instance.

Chronic pulmonary and renal disease are also contra-indications, but in the former an expert anæsthetist can render much service during the operation, and spinal anæsthesia is another addition to our present methods. For these reasons I maintain that the abdominal route should be the method of choice in by far the majority of corporeal cancers suitable for operation, and, as with cancer of the cervix, the vaginal method will gradually be displaced.

The Technique of the Abdominal Operation for Corporeal Cancer.—The preliminary disinfection is carried out on the same principles as already described for cancer of the cervix. If a profuse uterine discharge exists the uterine cavity should be plugged with gauze and the os closed by a mattress suture of strong thread. The vagina is swabbed with 5 per cent. silver nitrate and a piece of iodoform gauze left in the canal. The abdomen is opened by a free median incision, the "protectors" stitched in position, and the uterus pulled out of the abdominal incision and grasped by a large pair of ring forceps. The peritoneum between the bladder and uterus is picked up and incised transversely and the bladder separated downwards by means of the scissors. The uterus is then pulled to one side and the round ligament divided between forceps. The index finger is then thrust backwards through the avascular spot in the broad ligament, and when raised upwards the ovarian vessels are at once brought into prominence and are caught between forceps and divided. The other side is then treated in like manner. The uterus is now pulled well upwards and a few touches of the scissors discloses the position of the uterine arteries on each side; they are caught between forceps and divided. The bladder is then separated further downwards in order to expose the upper part of the anterior vaginal wall. The latter is then grasped with a long pair of Kocher's forceps applied close to the bladder and cut with scissors, thus opening the vaginal canal. A piece of gauze is at once inserted into the vagina, the gauze already in the vagina being removed before the canal is opened. A volsellum is then applied to catch and close the cervix, which is pulled well upwards. The remainder of the vaginal wall is rapidly cut with scissors, taking care to keep within the forceps grasping the distal portions of the uterine arteries. The uterus is thus removed with the cervix uppermost, which is an additional safeguard against the escape of its contents. Bleeding points at the vaginal angles are caught with forceps and the posterior vaginal wall seized with a volsellum to minimise the chances of contamination from the vagina. Thus a bloodless removal of the uterus can be carried out in from six to eight minutes. Ligatures are now applied to the ovarian vessels, round ligaments, and uterine vessels. A mattress suture of catgut is employed to control the bleeding from the vaginal angles on each side. When all bleeding has been arrested the peritoneum is accurately stitched across the pelvic floor by interrupted catgut sutures. The abdominal wall is closed and the operation completed. As a further means of preventing infection, in several of my cases the vagina has been clamped in its upper part before being opened, thus imitating what is done for cervical carcinoma. This manœuvre may be carried out with one clamp or two laterally applied clamps. A wider excision of the parametrium can be made by the abdominal route, which is an additional advantage. The safety of the ureters is ensured by the method of operating which has been described, for if the uterus is held up well and the incision of the vagina made internal to the forceps on the uterine vessels it is impossible to injure the ureters. In none of my cases was there injury to a ureter or subsequent necrosis.

Results.—My own series of 27 cases with one death, although a small number, is the only series I can find where the abdominal operation has been systematically adopted. The statistics emanating from the continental clinics relate to vaginal hysterectomy for corporeal cancer, as this operation is the prevailing fashion. Moreover, a percentage of cures varying from 53·3 to 100 is claimed after vaginal hysterectomy. The prognosis is undoubtedly better than the corresponding cervical cancer, but a cure list of 100 per cent. must be received with scepticism. It is only possible if early cases are treated. Advanced corporeal cancer tends to spread beyond the confines of the uterus, and if removed in this stage recurrence in the pelvis or in the lumbar or iliac glands develops. In my own list one patient died seven days after operation with symptoms of obstruction. In justice to myself I must state that I did not carry out the after-treatment and was only called in when the woman was *in extremis*. Of the others, one, aged 41 years, died suddenly ten months after operation from some cardiac

condition, but no post-mortem examination was obtained. The remainder have kept well and free from recurrence.

From what has been written concerning the operative treatment of uterine cancer it is manifest that the results will only improve when the disease is treated in its early stage. It follows, therefore, that the great aim must be to facilitate by all means in our power the early recognition of this disease and the early resort to operative treatment. In this country the uterine cancer committee of the British Medical Association, of which I had the honour to act as chairman, and the Central Midwives Board have assisted in the promotion of earlier recognition by issuing leaflets to midwives and nurses, and the cancer committee by publishing in the leading medical journals a synopsis of the signs and symptoms of uterine cancer in order to call the attention of practitioners to this important subject. These efforts and the increased interest in the subject of cancer have already borne fruit, for undoubtedly women are sent earlier for treatment and practitioners are more alive to the serious nature of uterine hæmorrhage at, or subsequent to, the menopause. As this knowledge becomes more disseminated amongst medical men and nurses, it is to be hoped that an increasing number of cancer patients will be sent for treatment whilst the disease is in such a stage that it may be successfully combated by modern surgical methods.

Wimpole-street, W.

ON JOUSSET'S METHOD OF DEMONSTRATING THE B. TUBERCULOSIS IN PLEURAL FLUIDS.

BY S. ROODHOUSE GLOYNE, M.D. LEEDS, D.P.H. LOND.,
PATHOLOGIST, CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, VICTORIA PARK, E.

THE demonstration of tubercle bacilli in serous pleural exudates has always been a matter of considerable difficulty. Thue,[1] in an analysis of 30 cases, found the organism only once, whilst Fernet[2] obtained three positive results out of 20 fluids. In 1903 Jousset[3] introduced a new method by means of which he obtained the tubercle bacillus in every one of 23 fluids. All workers, however, have not had such good results with this method; thus Körmoczi and Jassniger[4] found the organism three times in eight fluids (37·5 per cent.).

Jousset's method is briefly as follows: (1) the serous fluid is allowed to stand until the clot forms; (2) it is then filtered and the coagulum from the filter placed in a flask with 10–30 c.c. of the special pepsin mixture (according to the size of the clot); (3) the flask is now placed in the incubator at 37° C. or on a water bath at 50° C. until digestion of the clot has taken place—this may be aided by shaking the flask gently from time to time; (4) the mixture is finally centrifuged, and the deposit washed by pipetting off the supernatant fluid and adding distilled water; (5) smears of the deposit are then made on slides and stained with cold carbol fuchsin (Gabbet's method), care being taken not to leave the slides too long in the decolourising acid. The author uses large quantities of fluid, preferably 100 c.c., and in fluids which do not clot spontaneously he promotes coagulation by the addition of horse's serum mixed with an equal volume of 10 per cent. NaCl. The pepsin mixture used has the following composition: "Pepsine en paillettes (titre du 50 Codex) 1–2 grammes, glycerine pure 10 c.c., acide chlorhydrique à 22° Baumé 10 c.c., fluorure de sodium 3 grammes, eau distillée 1000 c.c." The liquid keeps for a considerable time. I have used the ordinary pepsin powder supplied by Messrs. Baird and Tatlock.

I have now tested Jousset's method, with certain modifications, in nine cases with three positive results—i.e., 33·3 per cent. These were all definitely tuberculous fluids as far as could be ascertained by other tests (sterility on ordinary culture media, lymphocyte count, and a high protein content—usually above 4 per cent.). Unfortunately, animal inoculations could not be carried out as controls. The following modifications of the original method were adopted: (1) in the majority of cases only a small quantity of fluid was available for examination—the contents of a 5 c.c. exploring syringe; (2) only fluids which gave a definite clot on standing were used, no blood serum being added; (3) the digestion was carried out in centrifugal tubes instead of flasks in order to avoid changing the fluid from one vessel to another and thereby losing some of the bacilli; (4) all digestions were made in the incubator at 37° C.; (5) hot carbol fuchsin was used for staining purposes, as in ordinary sputum work. In examining the stained slides considerable patience is required; in my experience it is not safe to return a negative result until at least a dozen slides have been carefully searched. Where a sufficient amount of fluid and clot were available other methods of examining for tubercle bacilli were also used as a comparison. The table given below shows a comparison of the results obtained.

Case.	Centrifuged deposit.	Teased clot.	Jousset's method.
1	—	—	Negative.
2	—	—	Positive.
3	—	Negative.	Negative.
4	—	—	,,
5	—	—	,,
6	—	Negative.	,,
7	Negative.	—	Positive.
8	—	Negative.	,,
9	Negative.	,,	Negative.

Wandsworth Common, S.W.

[1] Bulletin de la Société Médicale des Hôpitaux, Series 3, Tome xii., 1895, p. 439.

[2] Ibid., p. 145.

[3] La Semaine Médicale, 1903, p. 22, and Archives de Médecine Expérimentale et d'Anatomie Pathologique, Paris, Tome xv., 1903, p. 289.

[4] Deutsche Medizinische Wochenschrift, 1904, p. 342.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

CHRONIC INTESTINAL STASIS: A CASE OF TRIGEMINAL NEURALGIA TREATED BY ILEO-COLOSTOMY.

BY G. T. MULLALLY, M.B. B.S. LOND.,
DEMONSTRATOR OF ANATOMY, GUY'S HOSPITAL.

THE large part which intestinal toxæmia plays as a causative factor in many complaints hitherto considered to be primary, is becoming increasingly widely recognised, and as Mr. Arbuthnot Lane's work on this subject becomes better known it is found that a number of conditions previously unconnected can be grouped together as the end results of the same causative factor—namely, chronic intestinal stasis. The following case, which is unique in the history of surgery, illustrates this remarkably well, and shows the fallacy of treating results when it is possible to deal with and remove the cause. Those who believe in the importance of mechanical and physiological alterations in the drainage system maintain that the result of intestinal stasis is a general auto-intoxication, the effects of which manifest themselves in every organ of the body, producing at first merely temporary alterations of function, and later definite structural changes, a number of which are still regarded by many people as having an individual pathology. That tic douloureux is, in some cases at any rate, one of these late results is very well shown in the case now under consideration.

The patient, a married woman aged 38 years, was sent to Mr. Arbuthnot Lane by her medical attendant in South Africa with a view to some radical treatment for her trigeminal neuralgia, from which she had suffered intense agony for eight years. In her case the third division of the fifth nerve was chiefly affected, although the other divisions were also involved when the pain was particularly bad. The condition had been getting progressively worse, and for the last two years she said that she had not escaped an attack for a single day, and described the pain as intolerable. She

also suffered from severe and increasing constipation. This complaint antedated her neuralgia by several years, and latterly she often had had only one motion in four or five days in spite of regular purges. She had herself noticed and remarked that the attacks of pain were much aggravated when the constipation was at its worst. She had been treated by her own medical man with purges, &c., on the view that the underlying toxæmia was intestinal in origin. She had been under medical care for eight years. All the teeth in the affected area had been removed, but she obtained no relief from this or from any of the medical treatment. When seen she presented the typical appearance of a neuralgic patient, being thin and sallow, with a drawn, anxious face and a constant look of pain in her eyes. She spoke and ate with obvious fear of increasing the pain, and winced at the lightest touch over the affected area. Nevertheless, she was a woman of great self-control, and showed not the least neurotic tendency. Her hands and feet were cold, her skin was pigmented and harsh, and her breasts showed the changes of chronic mastitis which are so constantly associated with intestinal stasis. She was markedly tender on pressure in the right iliac fossa, and a radiographic examination with bismuth showed a thickened end coil of the ileum and a delay of 56 hours in the large bowel. Mr. Arbuthnot Lane was of opinion that the neuralgia was secondary to the intestinal toxæmia, and decided that the best method of treatment was an ileo-colostomy, which was accordingly performed. At the operation the lower end of the ileum was found to be obstructed by a normal appendix, which had passed up behind the mesentery and become adherent by its tip high up. There were also some firm bands, distinct from the appendix, fixing the ileum to the iliac fossa.

For the first week after the operation she experienced no relief at all, but on the eighth day she expressed herself as better, and slept well that night for the first time since admission. On the following day she woke up quite free from all pain, ate well, and talked and laughed quite freely, even allowing me to pinch her cheek without wincing. Except for a slight attack five weeks after the operation, she has had no more pain or even discomfort, and says she is better in herself than she has been for the last eight years.

While it is still too early to claim her as a permanent cure, yet the disappearance of her pain, which had prostrated her daily for the last two years, as soon as the source of toxic absorption was removed, is a most extraordinary and undeniable fact. This case, taken with our experience of the permanent relief given to the minor degrees of neuralgia and headache by a radical treatment of the intestinal stasis which lies at the root of so many of them, becomes very suggestive indeed, and opens up great possibilities in the future treatment of such a condition as tic douloureux should future observations show this pathology to be a constant one. It must be obvious that any operation which aims at the removal of the cause will be more rational than the mere treatment of end results, particularly when this involves such a difficult and mutilating operation as the removal of the Gasserian ganglion with its attendant sequelæ.

Guy's Hospital, S.E.

A NOTE ON INTRAPERITONEAL INJECTIONS OF OXYGEN DURING ABDOMINAL OPERATIONS.

BY H. J. GODWIN, M.B., B.S. DURH., F.R.C.S. EDIN.,
HONORARY SURGEON TO THE ROYAL HAMPSHIRE COUNTY HOSPITAL, WINCHESTER.

DURING the past four years I have injected oxygen into the peritoneal cavity after certain abdominal operations, and I must say the results in selected cases have been very encouraging. The cases in which I have found it most beneficial are: (1) After removal of large tumours to overcome negative abdominal pressure; (2) in tubercular peritonitis; (3) in certain cases to prevent the formation of adhesions; and (4) in general septic peritonitis. The following is the method I adopt. Just before I close the abdominal wound I insert a trocar and cannula (which I have had specially made by Messrs. Allen and Hanburys) into the abdominal cavity on the opposite side of my incision. I withdraw the trocar and leave the cannula in the peritoneal cavity. I then sew up the abdominal wound, then fix a rubber tube to the cannula and pass in oxygen from a cylinder through a Woulfe flask which contains hot saline. The amount of oxygen passed in does not seem to matter, but I always pass enough to completely obliterate the liver dulness. In my experience this treatment both lessens shock and stops nausea and vomiting. If the abdominal cavity is completely filled with oxygen it takes about two weeks to get quite absorbed. Since I have used this treatment in the ascitic form of tubercular peritonitis I have never seen the condition recur.

I publish this note as I have never seen any mention of it in literature, or seen the method adopted in any other hospital, and from the success I have had it is worth an extensive trial.

Winchester.

Reviews and Notices of Books.

A System of Treatment by Many Writers. Edited by ARTHUR LATHAM, M.A., M.D. Oxon., F.R.C.P. Lond., Physician and Lecturer on Medicine, St. George's Hospital; and T. CRISP ENGLISH, M.B., B.S. Lond., F.R.C.S. Eng., Senior Assistant Surgeon and Lecturer on Practical Surgery, St. George's Hospital. In four volumes. Vol. IV.: Obstetrics and Gynæcology. London: J. and A. Churchill. 1912. Pp. 883. Price 21*s.* net each volume.

Fourth Notice.

THE fourth volume of this System is concerned with Obstetrics and Gynæcology. In a work of this kind, consisting as it does of a large number of separate articles, it is impossible to notice all of them. When we remember that treatment is alone considered, and that the volume contains some 880 pages, it is obvious that a large amount of information is given. In the first half, dealing with obstetrics, among the articles which appear to us to be especially deserving of mention are those of Dr. J. W. Ballantyne on the General Management of Pregnancy, the two on Accidental Hæmorrhage and Placenta Prævia by Dr. W. R. Dakin, and the series on the Management of Normal Labour and of Labour in Special Presentations by Dr. E. Hastings Tweedy. Dr. J. R. Freeland writes on the Management of the Newborn Child, while the articles on Obstetric Operations are contributed mainly by Dr. Comyns Berkeley, with special articles on Pubiotomy and Symphysiotomy by Dr. C. Hubert Roberts, and an especially noteworthy contribution by Dr. J. M. Munro Kerr on Cæsarean Section and Cæsarean Hysterectomy.

In considering the treatment of albuminuria and eclampsia Dr. C. E. Purslow exhibits a wise conservatism, but we doubt if many obstetricians would agree to wait for the onset of eclamptic convulsions before inducing labour in a case of albuminuria. In discussing the treatment of air embolism, we think it would have been as well if Dr. Purslow had mentioned that many authorities look upon this condition with suspicion, and attribute most of the cases to the presence of gas-producing organisms in the tissues. The best line to follow in the treatment of labour in a case of contracted pelvis is ably discussed by Dr. Darwall Smith, and his conclusions as to the merits of pubiotomy and the treatment for infected cases are such as most obstetricians would agree with. In the account of the treatment of mastitis the very excellent results obtained by Bier's hyperæmic treatment might have been alluded to; however, this method receives very strong recommendation from Mr. J. W. Waterhouse in another volume of the System. In the description of the operation of cephalotripsy Dr. Comyns Berkeley does not lay sufficient stress on the importance of so applying the instrument that the ends of the blades may meet either under the chin or under the occiput, and while he points out that the ends of the blades should meet, the method of applying them illustrated in the figure

given would render this quite impossible. It is a pity that in Fig. 4, p. 427, the hand should have been shown as applied to the handles of a pair of axis-traction forceps, as this is quite a wrong method of extracting with this instrument, even when the head is on the perineum. It is true that the description of the figure applies to ordinary long forceps, but to avoid confusion such a pair of forceps should have been shown. If the practitioner adopts the mode of introduction of the axis-traction forceps given on p. 429 he will certainly get into difficulties, at any rate if he is using an ordinary variety of this forceps. Internal and external cephalic version is not bipolar in a transverse position, as it is described, and should not be given this name. Mr. Victor Bonney apparently is of opinion that good results are to be obtained by the use of antistreptococcic serum, and recommends its use, and appears to think this method of more value than vaccine treatment. We are of opinion that the initial dose should be at least double that mentioned by him, and in our experience we regard the action of a vaccine as much more satisfactory and more certain than that of the serum, which may, however, be given while a vaccine is being prepared.

The second half of the book is concerned with the treatment of various gynæcological affections. Operative treatment occupies a large space here when we remember that this book is intended primarily for the general practitioner. It is, of course, quite true that the gynæcologist is at the present day mainly a surgeon, still there are many gynæcological diseases which are capable of treatment by other than surgical measures, and this especially applies to those the treatment of which is usually undertaken by the general practitioner. As an example of what we mean, we may call attention to the fact that pelvic peritonitis is not mentioned in the index, and no article is devoted to its treatment. Of course, it may be objected rightly that pelvic peritonitis is only an accompaniment of many other conditions, especially of tubal inflammation. If, accepting this objection, we turn to the article on Salpingitis by Sir John Bland-Sutton, we find very little space devoted to the treatment of this disease apart from operation, and while it is quite true that many of these patients ultimately require operation, yet the great majority of the acute cases can be treated palliatively, and the best results are obtained when an operation is undertaken only in the chronic stages. For this reason we think a great deal more space might have been devoted to such treatment. In suggesting that the uterus should be removed in all cases in which the appendages have been removed, Sir John Bland-Sutton says that "the uterus without the ovaries and tubes is not only a useless organ but becomes the seat of profuse and irregular bleeding." Surely this is not so if the extirpation has been complete. In the article on the Treatment of Dysmenorrhœa, Dr. R. A. Gibbons makes one suggestion to which we take complete exception—namely, that in the treatment of this condition oöphorectomy should sometimes be employed. Perhaps the author is referring to cases of severe ovarian pain and not to true dysmenorrhœa. This is not quite clear; at any rate, in a case of dysmenorrhœa in which there is so much pain that any operation, apart from dilatation, is necessary, surely the proper treatment is to first try hysterectomy rather than to remove the ovaries. The articles on Diseases and Affections of the Vulva by Professor J. B. Hellier, and those on Diseases and Affections of the Vagina by Dr. W. E. Fothergill, are excellent, and there is a very good account of Wertheim's operation by Mr. Victor Bonney who has acted as sub-editor for this volume. We also commend the articles on Diseases and Affections of the Ovaries by Dr. H. Russell Andrews.

The whole work does credit to the authors who have taken part in its compilation. We have dwelt on a few points which we consider should undergo modification in future editions.

Anæsthetics: A Practical Handbook. By J. BLUMFELD, M.D. Lond. With 22 figures in the text. Third edition. London: Baillière, Tindall, and Cox. 1912. Pp. 134. Price 3*s.* 6*d.* net.

THE chief merits of Dr. Blumfeld's book are its lucid descriptions and excellent method. For students it is admirable, but, like all manuals written for this class of readers, it presents serious difficulties to its author. He has to decide what matter to expand and what to dismiss with brief mention. Dr. Blumfeld has shown his experience as a teacher by a wise choice in this direction, but we suggest in subsequent editions the addition of some warning to beginners who use alkaloids with general anæsthetics concerning the dangers of the method unless very careful selection of the cases is made. The section of the book dealing with spinal and local analgesia has suffered from its very condensed form, and the statement that "the higher the anæsthesia is required the larger must be the dose of analgesic injected into the subdural space," although absolutely true, needs the caution that a higher site of injection and a larger dose increase the danger of toxic effects. The additions to the present edition are the section on spinal and local analgesia, which, as we have suggested, deserves further expansion, and a section on "open ether," as well as a brief notice of the hypodermic injection of alkaloids before the general anæsthetic, and the mention of intravenous ether infusion. The book has, however, undergone careful revision throughout, and the result is the production of a truly excellent manual. Any student who has mastered its teachings will be well equipped to commence the practical training required for learning the art of administering anæsthetics safely and well. It is to be regretted that Dr. Blumfeld adopts the common but misleading phraseology which allows anæsthesia—i.e., a state of unconsciousness to pain—to be spoken of as "light" or "deep." Snow's terminology and that adopted in Germany, which employ the word narcosis to express the condition of more or less consciousness, and presence or absence of reflex response to stimulation, restricting the word anæsthesia to the precise degree of narcosis in which consciousness to painful stimulation has definitely vanished, offer many advantages and avoid much confusion.

Atlas der Menschlichen Blutzellen. Von Prof. Dr. ARTUR PAPPENHEIM. Supplement-Band. Dritte Lieferung. Tafel XXXIX.-XLIII. Mit 7 Figuren im Text. Jena: Gustav Fischer. 1912. Pp. 240. Price 14 marks.

Dr. Pappenheim is one of the most distinguished of hæmatologists in the narrower sense of the word. For 12 years he has applied himself assiduously more especially to the study of the leucocytes of the blood in 50 different forms of disease, and the results of his labours we have already referred to in THE LANCET.

The results are figured in the 43 plates, the last of which (XXXIX.-XLIII.) appear in this the supplementary volume. About 50 pages are given to the description of what the author calls leucoblastic leukæmia, a review of the lymphoid cells described in the various plates, and especially these cells as they appear when the Romanowsky stain is used, and also of the hæmocytology of normal and abnormal blood corpuscles as seen with the May-Giemsa stain. The remainder of this part is given to the red blood corpuscles. The author is rather a purist in regard to technical terms, which are singularly numerous in the text. He prefers instead of the usual word erythrocytes for the red corpuscles to use erythrocytodes, and he has an introductory chapter on the

nomenclature of erythrogenesis. About 60 pages of text are given to the description of the development of erythroblasts in various cases of disease, such as acute myelo-leukæmia, anæmia of cancer, myeloid leukæmia, pernicious bothriocephalus anæmia, and finally of normoblasts in embryonic blood. The plates have been carefully drawn and coloured.

This is essentially a work for reference, and can be fully appreciated only by those who are perfectly familiar both with diseases of the blood on the one hand, and with the highly technical methods now in use for the study of its morphological elements on the other. We congratulate the author on the persistent courage which he has brought to bear in the investigation of such a large amount of material in a department of pathology that in some respects may be taken as an index or expression of morbid states in other parts of the body. We ought to add that the first volume appeared in 1905, the second in 1909, the first and second parts of the supplementary volume in 1911, and this the third part of the supplementary volume in July, 1912.

Traité Pratique de Pathologie Exotique, Clinique et Thérapeutique. Publié en Fascicules sous la Direction de MM. CH. GRALL and A. CLARAC. III., Dengue, Fièvre Jaune, Choléra, Maladie du Sommeil. Par Reboul, Clarac, Simond, Métin, et Lebœuf. Paris: J. B. Baillière et Fils. 1912. Pp. 406. Price, paper, 12 francs; boards, 13.50 francs.

THIS volume of the "Traité Pratique de Pathologie Exotique et Thérapeutique" contains the articles on Dengue, Yellow Fever, Cholera, and Sleeping Sickness, and the names of the respective authors are sufficient evidence of authority.

The article on Dengue, by Dr. H. Reboul, opens with a short historical survey of the countries in which it has appeared, and then after citing some facts concerning its epidemiology and its mode of transmission—chiefly by the sea—the author discusses its etiology. The conclusion Dr. Reboul has come to is that the pathogenic agent is ultramicroscopical, that it belongs to the protozoa, and that it is probably transmitted from man to man by one of the culices. An account of the symptomatology follows, after which is given the differential diagnosis from yellow fever, relapsing fever, malarial fevers, influenza, acute rheumatism and Mediterranean fever, and the article terminates with the prognosis and treatment.

Yellow fever is discussed by Dr. A. Clarac and Dr. L. Simond. Dr. Clarac gives a historical survey of the affection and its geographical distribution. Dr. Simond contributes the account of its epidemiology and prophylaxis. He remarks that the specific microbe has not yet been discovered, notwithstanding the numerous researches that have been undertaken on the point. He describes the discoveries of Walter Reed, Carrol, A. Agramonte, and J. W. Lazear, and here we are glad to see that the work of Finlay, who first showed the correlation between the disease and the culex, is duly recognised. Some years later the stegomyia fasciata was shown by the former savants to be the incriminating agent after a series of masterly experiments. Dr. Simond concludes his portion of the article with a remarkably complete statement of the methods to be followed up in the prophylaxis. To Dr. A. Clarac is given the section on the symptomatology, pathological anatomy, prognosis, and treatment. The reader will find here a first-class account of the clinical symptoms of the fever.

The article on Cholera is written by Dr. Métin. The account of the history, epidemiology, bacteriology and symptomatology of the affection is quite up to date, the facts concerning Koch's spirillum are fully set forth, and an excellent differential table of the various microbes found in the disease is furnished. With regard to treatment, the author recommends opium for the preliminary diarrhœa; he does not mention the plan of treatment by castor oil of Sir George Johnson, a method that at the hands of some physicians in India has been found more efficacious than that by opium. Sir George Johnson's theory of cholera collapse has apparently escaped the writer, but the article is up to date, as is shown by the narration of the researches of Rogers with hypertonic solution of salines and the prescribing of permanganate of potash—by far the most successful treatment yet advocated, the latest mortality in Calcutta having been reduced by it from about 60 to 32 per cent.

The article on Sleeping Sickness is by Dr. Lebœuf. The fascinating history of the etiology of the disease is fully given, and is illustrated by some remarkably clear plates, the trypanosomata and the glossinæ being well depicted. The clinical symptoms and morbid anatomy are well set out, and finally we are recommended methods of prophylaxis and of treatment. With respect to the latter the author is of opinion that atoxyl holds the first place.

The remaining section of the work is by Dr. Gustave Martin on Trypanosomiasis as seen in America.

Krankheit und Social Lage. Vol. I. Edited by Professor M. MOSSE and Dr. G. TUGENDREICH, of Berlin. Munich: J. F. Lehmann. 1912. Pp. 232. Price, in paper covers, 6 marks.

IT is intended to publish this work in three issues, the volume now under review being followed by two others before the end of the year. The editors have secured the coöperation of a number of members of the medical profession in Germany, all of whom have acquired distinction in the special branch of medicine upon which they write.

The subject of "Disease and Social Conditions" is a complex one, and it is admitted that there are serious difficulties to overcome in dealing with the large amount of material available. It is obvious that there are many points of contact between medicine and social problems, and if all were given equal attention the work would become unwieldy and fill more than three volumes. The editors, therefore, while giving a fair share of their space to the various aspects in which disease and social conditions may be discussed, have allowed themselves a freer hand in dealing with the relation of poverty to health. While it is true that wealth may be detrimental to the health of its possessors through leading to over-indulgence of the appetites and to excesses of many kinds, the evils thus arising are, in comparison with those commonly resulting from poverty, almost negligible. It is a sad fact that ill-health leads to poverty, but on the other hand poverty prepares the soil on which many maladies flourish, and develops sickness of a kind that the medical profession is often well-nigh powerless to combat with any prospect of success, since proper surroundings cannot be provided to enable the patient to live in a rational way; nor can sustained treatment be carried out, without which there is frequently small chance of effecting a cure. Climate, occupation, and other conditions also affect the health. Environment is not the only consideration; racial vigour, for example, also plays a part. Jews and Christians, for instance, living under the same adverse social conditions may display different rates of sickness and mortality; the Jews being the hardier race can withstand an evil environment far better than Christians, who are frequently of a less vigorous stock.

Volume I. is divided into three sections, comprising altogether some 20 articles written by as many medical experts. The first section discusses disease and social

conditions generally, and contains an introductory chapter by the joint editors, and a thoughtful article on the proper basis for sickness and mortality statistics by Professor H. Silbergleit, director of the Statistical Office, Berlin. The second section deals with the Social Etiology of Diseases, and comprises 14 chapters treating of such topics as the influence which housing, food, and occupation have upon sickness and death-rates; the effects of social conditions on women and children; the influence of such conditions on children in respect of school attendance and on adults for military service. Consideration is also given to the influence of social conditions upon nervous disorders and insanity, as well as upon suicide, crime, alcoholism, sexual disorders, infectious fevers, and especially upon tuberculosis and cancer. A separate chapter is given to the effects of these conditions on diseases of the teeth. The third section is devoted to the Social Therapy of Diseases, and contains chapters discussing the question of fighting the social causes of sickness: (1) by the State, (2) by the local community, and (3) by private efforts. The influence of social legislation on the prevention, detection, and spread of certain diseases is likewise considered, as also is the subject of social regulations for improving the propagation of the race.

From what has been said it will be seen that this volume covers a wide field of inquiry. It has been written intentionally as free as possible from technicalities of medicine, so that it might appeal not only to members of the medical profession but to all educated laymen also, and to sociologists generally. The writers of the various articles treat their subjects well, and some are discussed from a high intellectual standpoint. Those of our readers who are acquainted with the German language will find in this work a large amount of interesting matter as well as much food for thought of a particularly topical character.

Text-book for Nurses: Anatomy, Physiology, Surgery, and Medicine. By E. W. HEY GROVES, M.S. Lond., F.R.C.S. Eng., Assistant Surgeon, Bristol General Hospital, Clinical Lecturer, University of Bristol; and J. M. FORTESCUE-BRICKDALE, M.A., M.D. Oxon., Assistant Physician, Bristol Royal Infirmary, Clinical Lecturer, University of Bristol. With 205 illustrations, many coloured. London: Henry Frowde and Hodder and Stoughton. 1912. Pp. 407. Price 12*s.* 6*d.* net.

THE authors of this work have made it their object to present to the nursing profession a treatise which should supplement the lectures usually given by the medical and surgical staff of their hospital, and make a basis for the examination papers by which their knowledge is tested. The chief aim of such lectures, as well as of the present book, is to enable the nurse to *understand* the principles underlying the medical and surgical treatment which it is her duty to assist in carrying out. The writers do not attempt to deal with the technical details of nursing handicraft, which they very rightly consider can be taught only in practical classes by and for nurses. The ordinary medical student's text-books are not suitable for nurses, because they are too long and expensive, and they presuppose a practical knowledge of laboratory and post-mortem work. On the other hand, nursing manuals do not always embrace the subjects of anatomy, physiology, medicine, and surgery sufficiently comprehensively to form either an examination standard or a book of reference.

In the work under review the broad principles of anatomy and physiology are well dealt with in so far as the proper comprehension of the subsequent sections of surgery and medicine is concerned. The illustrations are numerous and carefully selected, and form a most important feature of the work. The knowledge of anatomy and physiology is valuable to a nurse for many reasons; it gives an intelligent understanding of the structure and working of the human body, the care of which will be her chief duty; it also serves as a valuable means of educating the mind, so that she will be able to comprehend in some measure those problems of health and disease, of drugs and operations, of life and death, which will later be her chief study. The sections on surgery and medicine are well written, and should be most useful for training purposes and for reference. Stress has been laid upon all such matters as a nurse can or should be able to observe for herself. That the education of the faculty of accurate observation is one of the principal objects of a nurse's training is not lost sight of by the authors. The clinical course and the explanation of the rationale of treatment of all the important surgical and medical diseases have been very fully described, and in order to make the book more useful for the purposes of reference the authors have devoted a brief space to various diseases of rare occurrence which are not referred to usually in nurses' lectures.

Appendices contain an excellent account of clinical instruments in common use; rules for the examination of the urine, determination of the temperature, pulse, counting the respiration, and methods for collecting material, such as sputum, throat swabs, blood, urine, fæces, and vomit, for the pathological laboratory. There is also included a list of the chief modifications in names and descriptive terms of the recently agreed upon B.N.A. (Basle Nomina Anatomica) nomenclature which should be useful when studying the section on anatomy.

The book should be useful, not only to the nursing profession, but to junior medical students as a preparatory work containing the outlines of what they will be expected to study more fully later from the larger text-books of their own profession. The many illustrations also should be serviceable, for they are clear and judiciously selected. The moderate cost of the book is an advantage.

LIBRARY TABLE.

Augustus Charles Bernays: A Memoir. By THEKLA BERNAYS. London: Henry Kimpton. 1912. Pp. 309. Price 9*s.* net.—This biographical sketch of an able surgeon and an interesting personage has been well and carefully written by a sister whose well-known devotion to her brother has not prevented her treating in a critical manner his personal, mental, and social qualities, and also his defects. Allowance must be made if the surgical achievements are painted in somewhat brighter colours than perhaps a professional eye would consider desirable, but the book is not meant merely for medical readers. Dr. Bernays could trace his descent from a Hebrew family of considerable distinction, so that from Baer of Neustadtl (near Mayence), his great-grandfather, "by dropping the latter part of the town's name and by running the remaining syllables together—Baerneus—then changing the orthography to the French, Bernays, created the name." This special member of the family was born at St. Louis, U.S.A., in 1854, practised surgery in that city during his active professional life, and died there in May, 1907, from the results of atheroma of the coronary vessels of the heart. The earlier years of his life were spent partly in America and partly in Germany, and in October, 1872, we find him commencing his medical curriculum at the University of Heidelberg, where Gegenbauer and Gustav Simon were still energetic and enthusiastic teachers of anatomy and surgery respectively. He took his degree, *summa cum laude*, in 1876, and in the winter session of that year was in Berlin working in the clinics of B. von Langenbeck and Bardeleben, and listening to the lectures of Virchow, Helmholtz, and du Bois Reymond. The following summer he was at Vienna with Billroth,

then at the height of his popularity, and in the autumn of 1877 he came to London to see Lister and qualified as M.R.C.S. Early in the following year he returned to America, exceptionally well-equipped to practise surgery in his native city. Sceptical as to the value of therapeutical methods, his manipulative dexterity and boldness of idea (faithness, fearlessness, force being his motto) led him to trust mainly to operative treatment in disease, whilst his impulsive nature plunged him into many controversies on the question of medical ethics with the professional societies of his own locality, so that his name "soon became the synonym of masterfulness." Many were the heartburnings caused by his recognised want of tact and his delight in extremes, but his keen sense of humour, surgical ability, aptitude as a teacher, and loyalty as a friend were compensations that carried him through much. That he always considered the labourer worthy of his hire may be judged by the fact that he claimed a fee of £3000 for extracting some bullets from the skull of the wife of a reputed millionaire murderer; fought tenaciously for the same legally; and finally compromised for £1000, "the justice of which claim was not disputed and promptly paid." Throughout his life Bernays not only worked strenuously but also played hard, and horse-racing was his favourite amusement. At one time he owned several racers, and one, "Sir Joseph Lister," won him some substantial stakes; but it is needless to say that at this pastime he was pitted against experts outside his own line, and as a consequence lost heavily at the game. There is but little doubt that his premature decease was partly caused by his temperamental restlessness, for in his life's programme there was no space for repose. Though he left many published papers, yet modern surgery could ill afford the loss of one whose career, methods, and practice resembled in many particulars that of Lawson Tait on this side of the Atlantic, before he had the opportunity of placing upon record the experiences of his calmer, more matured, and mellow manhood. The book, on the production of which we can congratulate the author, is illustrated by photographs depicting Dr. A. C. Bernays at different periods of his career.

The Grouse in Health and in Disease. Being the Popular Edition of the Report of the Committee of Inquiry on Grouse Disease. Edited by A. S. LESLIE, Secretary of the Committee, assisted by A. E. SHIPLEY, F.R.S., Master of Christ's College, Cambridge. London: Smith, Elder and Co. 1912. Pp. 472. Price 12*s.* 6*d.* net.—In THE LANCET of Sept. 30th, 1911, we reviewed at considerable length the two volumes of the Final Report of the Committee of Inquiry on Grouse Disease bearing the same title as this work, and expressed the opinion that the Report was a model of what such work should be, and was a good example of the way in which scientific medicine is now bound up with every phase of social life. It is therefore unnecessary for us to review at length this popular edition. The speedy exhaustion of the printed copies of the original Report made evident the necessity for a second and shortened edition, and in consequence this volume has been prepared under the authority of the committee. It would have been impossible to reproduce this edition on the same scale as the Report, for the greater number of the coloured plates had been removed from the lithographer's stones. Moreover, such a course would hardly have been fair to the subscribers to the Report itself, who ordered copies in advance on the assumption that the original edition would be limited in number. In this volume certain of the purely scientific portions have been omitted, and only such pathological details as are necessary for the proper appreciation of the conclusions to which they led have been referred to. The list of specimens examined, notes on experiments, and other technical details, as well as lists of subscribers and local correspondents, have also been left out. Many chapters have been condensed or transposed. Part II. of the Report has been materially reduced in accordance with the purpose of making this book rather a practical guide to sportsmen and naturalists than a specialised study of diseases of the grouse. Part III., however, which is of practical interest to moor-owners, has been reprinted almost without alteration. Among those who are mainly responsible for the departments in which the work of summarising the Report has been subdivided are: Part I. (Life History): Mr. A. S. Leslie, Mr. A. H. Evans, and Mr. E. A. Wilson, with special contributions from Mr. H. P. Grimshaw, Dr. H. Hammond Smith, and Mr. R. H. Rastall. Part II. (Pathological): Mr. E. A. Wilson, Mr. A. S. Leslie, Dr. A. E. Shipley, Dr. R. T. Leiper, Dr. H. B. Fantham, Dr. Louis Cobbett, and Dr. G. S. Graham Smith. Part III. (Moor Management): Lord Lovat, with special contributions by Mr. P. H. Grimshaw and Dr. Hammond Smith. There are 21 plates, of which 12 are in colours, quite a number of figures in the text, and maps showing the incidence of disease and the rainfall in Scotland. The publication of this work, which is worthy of all praise, will make the essential details of this important Report accessible at a moderate cost to scientific men, moor-owners, and sportsmen.

MISCELLANEOUS VOLUMES.

A NUMBER of chemical and other scientific monographs may be suitably dealt with in this column. In *Chemical Phenomena in Life* (London and New York: Harper Brothers. 1911. Pp. 152. Price 2*s.* 6*d.* net.) Professor FREDERICK CZAPEK gives a most interesting and lucid account of our modern conceptions of the general chemistry of the cell. All who are desirous of keeping pace with the modern disclosures of bio-chemistry in regard especially to the light which its study is throwing upon the molecular structure of living protoplasm, and the phenomena of synthesis and endosmosis in the plant cell, will read this little volume with profit. It is not an easy matter to present in a popular form the rôle of sols, gels, catalysts, and so forth, but Professor Czapek has succeeded where so many writers fail.——We have noticed on several occasions, as each edition was issued, Dr. J. C. THRESH'S *Simple Method of Water Analysis* (London: J. and A. Churchill. 1912. Pp. 65. Price 2*s.* 6*d.* net). The fact that the book has reached a seventh edition is proof of the appreciation of the "simple method." In this edition the most important alteration is the substitution of "parts per 100,000" for "grains per gallon."——*Experimental Domestic Science*, by R. HENRY JONES, M.Sc., F.C.S. (London: William Heinemann. 1912. Pp. 235. Price 2*s.* 6*d.*), is an attempt to present many domestic matters in a scientific light, and the result is most interesting. After all, a well-appointed kitchen provides appliances of the laboratory type, and many instructive demonstrations can be given with the ordinary culinary utensils. As a rule there is a total disregard of scientific principles by kitchen authorities, and this book therefore deserves a cordial welcome, since its object is to remove this reproach. The chapters on the composition of foods, good and bad methods of roasting, baking, boiling, frying, and steaming are excellent. There are also some clearly written sections on pure science, followed by an account of water, air, and ventilation. The book contains some good things and dispels many kitchen and domestic fallacies.——*Problems in Practical Chemistry*, by G. F. HOOD, M.A. Oxon., B.Sc. Lond. (London: Mills and Boon. 1912. Pp. 265. Price 5*s.* net.), provides a series of exercises in the form of problems. The directions

are eminently practical and clearly set out, while calculated to improve the faculty of manipulation. It is essentially laboratory teaching that is aimed at, and when the plan adopted is intelligently followed the student should finish the course possessing a sound acquaintance with the details of practical operations.——*Volumetric Analysis*, by CHARLES H. HAMPSHIRE, B.Sc. Lond., A.I.C. (London: J. and A. Churchill. 1912. Pp. 104. Price 3*s.* 6*d.* net.), contains simple schemes in volumetric analysis adapted particularly for pharmaceutical students. The processes set out are described in the well-known standard works on the subject, and the only reason we can see for this collection of material being published separately is that it will save the particular student for whom it is written the trouble of referring to authorities who have given the subject wider scope. The sections based upon the requirements of the British Pharmacopœia will be found useful, but they offer nothing fresh. ——*The Cinematograph and Natural Science*, by LEONARD DONALDSON (London: S. Ganes, Limited. 1912. Pp. 88. Price 2*s.* 6*d.* net.), serves to remind us of the wonderful achievements and possibilities of cinematography as an aid to scientific research. There are 25 illustrations which include trypanosomes in the blood; incidents in the life of the ant, wasp, frog, and beetle; and a film of submarine life taken through a glass-bottomed boat. The second chapter explains how the motion picture is destined to become a recognised factor in surgical instruction. Lectures, demonstrations, operations, all fall within this graphic method of education. The book is most interesting and its perusal excites wonder.——We have previously referred to Dr. J. S. HALDANE'S investigations of mine air, and we now welcome an extension of the subject in *Methods of Air Analysis* by this distinguished scientist (London: Charles Griffin and Co., Limited. 1912. Pp. 130. Price 5*s.* net.). The most interesting, as it is the most original, chapter is that dealing with the recognition and determination of small proportions of carbon monoxide in air, but equally important are the monographs on the determination of dust in the air (reference being made in particular to industrial dusts), the estimation of oxygen, moisture, and carbonic acid. The methods described aim at both accuracy and rapidity of accomplishment. They are for the most part simple and easy to follow, while special attention is very properly given to detail.

Plays, we are told by Dr. W. WINSLOW HALL, in his *Metred Playlets* (London: A. C. Fifield. 1912. Pp. 63. Price 1*s.* net.), ought to be playable, for which purpose they should be written in prose, and readable, wherefore they should be written in verse. And finally, if they are worth viewing or reading they should, he says, be made accessible to the whole world by the use of a language that is everywhere intelligible. "Such a language exists, and is known as Esperanto." The five playlets in his book he hopes fulfil all these conditions. They are available in prose for any stage sufficiently enlightened to produce them; they are set forth in the book in "versified form" for those who wish to read them; and ready for the awakening of the world they already exist in Esperanto. We have read the versified playlets, and we ask in the words of the author's epilogue—

> What means this puppet dance,
> Thou holder of the strings?
> We grasp not at a glance
> What means this puppet dance.

If Esperanto can make the author's message clear, it will have justified itself as a means of communication.——Those who like bright and witty verses with the lyric lilt will find much to while away the idle hour in *The Brain of the Nation and Other Verses*, by CHARLES L. GRAVES (London: Smith, Elder, and Co. 1912. Pp. 116. Price 3*s.* 6*d.* net.). The verses, many of which have appeared in the *Spectator*, *Punch*, or the *Cornhill Magazine*, are grouped under the following heads: Rhymes of Revolt, which have a political tinge; Appreciations of More or Less Distinguished Persons; Holiday Rhymes; Studies in Discipleship, a Collection of Burlesques; and Varia, of which "The Jammind" will perhaps appeal most to the humorous faculties of the medical reader. Many of the pieces are intentionally reminiscent of various well-known writers, and all are characterised by Mr. Graves's well known and elegant humour.

JOURNALS.

The Journal of Physiology. Edited by J. N. LANGLEY, Sc.D., F.R.S. Vol. XLV. Nos. 1 and 2. August, 1912. London: C. F. Clay, Cambridge University Press. Pp. 118. Price 7*s.*—The Significance of the Suprarenal Capsules in the Action of Certain Alkaloids, by H. H. Dale and P. P. Laidlaw. It is now known that several alkaloids producing the effect of sympathetic nerve stimulation, if injected intravenously, fail to reproduce the effect when applied to isolated tissues. The non-pregnant uterus of the cat is inhibited in the body by a number of alkaloids which leave it unaffected or cause it to contract as an isolated organ. The isolated organ was suspended in warm oxygenated Ringer's solution, and so arranged as to record its movements. The observers experimented with nicotine, adrenine, cystisine, ergotoxin, and apparently anomalous results were obtained. It occurred to them that the "anomaly" would be explained if it could be shown that the sympathetic effect of these alkaloids on the uterus is in part the indirect result of an acceleration of the secretion of adrenine. The non-pregnant cat's uterus is extremely sensitive to minute injections of this drug. Nicotine increases the output of adrenine. The authors prove that certain alkaloids which produce the effect of sympathetic nerve stimulation on the cat's uterus *in situ* fail to do so when the organ is isolated from the body, and the same is true of the iris. The factors contributing to this sympathetic effect are: (*a*) a stimulating action on sympathetic and ganglionic cells seen in the cases of nicotine and its allies, and of pilocarpine; (*b*) acceleration of the rate of adrenine secretion from the suprarenal glands; and (*c*) a peripheral "sympathomimetic" effect, seen in the animal under urethane, or after destroying the brain, and independent of the ganglia and the suprarenal gland. After an analysis of the mode of action of the drugs investigated the observations appear to emphasise the importance of controlling the effects of drugs on the whole animal, and explain the effects of a sympathomimetic nature by a study of their action on isolated organs. It may be that if the action as seen in the whole animal is alone considered, effects may be attributed to a drug, and special receptive mechanisms postulated for their explanation, though they are really secondary to effects in other parts of the body. The effects secondary to adrenine secretion in the case of a few alkaloids are proved to be an important factor in the action of others.—Some Experiments on the Precipitation of Suspension Protein by Various Ions and Some Suggestions as to its Cause, by W. Nevill Head, will be interesting to physiologists whose work lies more especially in the domain of physical chemistry.—The Influence of Lack of Oxygen on Tissue Respiration, by F. Verzár. While the alterations of the respiratory gases produced by changing the O_2 pressure in the inspired air have been the subject of numerous researches, we know almost nothing as to how the different organs, considered individually, react to a greater or less supply of oxygen. The gases were analysed by the Barcroft and Roberts method, and the precautions taken during the experiment are set forth in the original paper.

The isolated submaxillary gland, the kidney, heart, and gastrocnemius muscle, were studied. As regards the submaxillary gland, whatever the oxygen pressure in the blood, the gland uses always the same amount of O_2 so long as the blood brings the quantity of O_2 which it requires, even when the CO_2 pressure in the blood decreases to a very low value. Skeletal muscle uses less oxygen if there is less in the blood, which means that the oxygen pressure in the muscle is either zero or very slight; it cannot be more than 19 mm. Hg. Similar investigations on the heart and kidney could not be carried out. The heart usually uses less oxygen than normally if the oxygen in the blood is diminished, while the kidney increases in oxygen use during lack of O_2.—On the Presence of β-imidazolethylamine in the Intestinal Wall, with a Method of Isolating a Bacillus from the Alimentary Canal, which converts Histidine into this Substance, by E. Mellanby and F. W. Twort. The base mentioned in the title, the most active principle in ergot affecting the uterus, which is produced by removing carbon dioxide from histidine, seems to owe its presence in extracts of the intestinal mucous membrane to bacterial action. The authors give their experiments which lead them to this belief.—The paper on Heat Coagulation of Proteins, by H. Chick and C. J. Martin, is Part III. of their study of this subject.—F. W. Edridge-Green gives a number of New Visual Phenomena, which will be read with interest.—Casimir Funk continues his studies on the Preparation from Yeast and Certain Foodstuffs of the Substance the Deficiency of which in Diet occasions Polyneuritis in Birds. The author isolated from a number of foodstuffs the substance preventing beri-beri. The base so obtained seems to be the same. For curing pigeons (per os) 0·02–0·04 grm. was employed. The chemical properties of the curative substance suggest that it is pyramidine base, forming a constituent of nucleic acid.—Observations on the Effects of Section of the Spinal Cord upon Temperature and Metabolism, by E. L. Kennaway and M. S. Pembrey. Distinguishing between muscles and glands as sources of heat, the authors show that paralysis and anæsthesia chiefly influence the former source, hunger especially affects the latter. Very full protocols are given. In a paraplegic mouse the anterior portion of the body responds to changes of external temperature in the manner characteristic of a warm-blooded animal, and the posterior portion responds to such changes as does a cold-blooded animal. The effect on the respiratory exchange when the external temperature rises or falls is the resultant of these opposite tendencies. Division of the spinal cord below the brachial plexus is followed by a progressive fall of the animal's weight. Although food is eaten eagerly it is not absorbed well; the intake of N is less than the output. The material loss appears to consist of fat and muscle. The paraplegic portions of the body are liable to an excessive loss of heat, owing to loss of vaso-motor control.—D. Noël Paton describes the Extrinsic Nerves of the Heart of the Bird, and with W. C. Mackie he gives an account of the Liver in relation to Creatine Metabolism in the Bird.—The Proceedings of the Physiological Society for June 29th, 1912, include the following: F. Cook and M. S. Pembrey: Further Observations on the Effects of Muscular Exercise in Man. F. W. Lamb: A Case of Bence Jones Proteinuria. W. Burridge: Anæsthetics and the Frog's Heart; Note on an Action of the Hydrogen Ion; Propagation of Contraction in the Frog's Heart. Georges Dreyer, William Ray, and E. W. Ainley Walker: The Relation between the Sectional Area of the Trachea and the Body-weight in Certain Animals. Gastav Mann and J. G. Gage: Nuclear Activity in Relation to Metabolism, particularly in the Blood.

The Yale Medical Journal.—This journal, which was started in 1894 as an undergraduate magazine for Yale University, with an advisory board of graduate editors, announces in its May issue that with that issue publication will be discontinued. Two reasons are given for this course: first, the abundance of available current medical literature; and secondly, that the value of the journal in the limited field which it had attempted to cultivate was not sufficient to justify the effort necessary for its continued publication This journal has striven after a high ideal, ethically and otherwise, and while the first reason given is undoubtedly true, there are assuredly many other medical journals in America to which this motive for self-immolation would fitly come with a greater sense of impelling justice than to the *Yale Medical Journal.*

MEDICINE AND THE LAW.

Points under the Insurance Act.

ONE of the first questions raised before a civil tribunal in connexion with the Insurance Act was decided recently by Judge Mulligan in the King's Lynn county court, the occasion being an application to reduce the compensation payable to a workman under the Workmen's Compensation Act. Presumably an award of compensation had been made before the Insurance Act came into force and the workman had returned to work to the extent of earning some, but not his previous rate of, wages. In reducing the compensation proportionally to the amount the man was now able to earn, his honour had to decide whether the sum of 5*d.* per week paid by the employer, as his contribution under the Insurance Act, was money earned by the workman or not. He held that sums so paid, although intercepted and applied compulsorily for the workmen's assumed benefit under the Act, were earnings and must be taken into account accordingly. The workman therefore, instead of taking 6*s.* per week under the fresh award, was allowed 5*s.* 7*d.* There may seem to be a measure of hardship in this to a workman who at present derives no medical benefits from his compulsory insurance, but a person in the situation described, partly incapacitated through an accident, will frequently be one of those who profit most when medical attendance is provided. Another matter to which attention has recently been drawn is the position of female domestic servants and the alternative benefits, which it has been suggested they should be permitted to arrange for through their societies in consideration of their position as a generally healthy and well-cared-for class. Lady St. Helier, writing to the newspapers with special reference to the Domestic Servants Insurance (Approved) Society, describes as a serious step the possible surrender for the sake of alternative benefits of 7*s.* 6*d.* per week sick pay for six months, followed by 5*s.* per week for life if incapacitated. Lady St. Helier bases on the actuarial report of the Insurance Commissioners the statement that the servant girl 21 years of age abandoning the above rights in favour of an old-age pension to accrue at 65 would only become entitled at that age to 3*s.* 8*d.* per week, and urges caution upon those considering the question of alternative benefits. Her letter suggests that the joining of a society catering specially for their needs may induce domestic servants to subscribe for other benefits in addition to, rather than in exchange for, those intended by the Insurance Act.

YELLOW FEVER IN INDIA.—The Bombay Government are arranging for the conduct of scientific investigations at Bombay and Karachi regarding the prevalence of the genus of the mosquito family known as Stegomyia fasciata, the carrier of yellow fever. It is well known that this species of mosquito is widely distributed throughout India, and it is recognised that it would be difficult to check an epidemic of yellow fever once the disease gained a foothold in India through the communication that exists between the important Indian ports and the yellow fever regions of America and the West Indies.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 21, 1912.

The Intercepting Trap.

THE intercepting or disconnecting trap which separates the house drain from its sewer connexion with the object of interrupting the aerial continuity of sewer and house drain has been the subject of investigation by a departmental committee, the members of which, Dr. L. W. DARRA MAIR (chairman), Mr. A. A. G. MALET, and Mr. H. J. PEARSON, represented the medical, engineering, and architectural departments respectively of the Local Government Board. As the aim of the intercepting trap is nothing less than to prevent the intrusion of sewer air into the house drain and thence into the house itself, and as the report of the committee (which has recently been issued as a Parliamentary Blue-book) discounts the necessity of, and even discourages the use of, the trap save in exceptional circumstances and with special safeguards, the whole matter requires, and no doubt will receive, careful consideration. The report is evidently the result of much painstaking investigation, 52 representative witnesses having been examined, and many experiments, engineering and bacteriological, having been carried out.

The intercepting trap was introduced as a sanitary safeguard many years ago, not long after, and partly as a result of, the public attention excited by the severe attack of typhoid fever from which the late KING EDWARD, when PRINCE OF WALES, suffered, and was the outcome of the belief, then common, that such diseases as cholera, typhoid fever, and diphtheria were spread by emanations from decaying animal matter, and that therefore it was necessary to check the indiscriminate "laying-on" of infective sewer gases to the interior of dwellings *viâ* their house drains. The trap, however, has met with considerable opposition, especially in recent years. One of the objections urged against it, principally by sanitary engineers, is that it prevents natural ventilation of sewers being effected through the house drains and ventilating shafts attached to them, and thus entails costly alternative measures for sewer ventilation. At the outset of their investigations, however, Dr. DARRA MAIR'S committee wisely set aside this objection, on the ground that the action of the trap in interrupting the passage of sewer air along the house drain constitutes the fundamental advantage claimed for it, though it should be noted that subsequently reasons are given for the view that the need for the free ventilation of sewers has been exaggerated. Incidentally it is declared that sewer ventilation should not be effected by means of openings at the surface level, a conclusion which no doubt will meet with general acceptance. In considering the merits and demerits of the trap itself, from the householder's point of view, the chief practical objection is that the trap is an obstacle to the passage of sewage to the sewer, thus causing on the one hand putrefaction of sewage, and on the other hand leading to actual blockage in the house drain, the effects of which are difficult to deal with. The committee found this objection much more serious than had been anticipated. A block may exist at the trap and remain quite unsuspected, although the drain is partially filled with decomposing sewage leaking into the soil near the house, or, if there is a basement, into the house itself. The drain appears to act efficiently enough, but meanwhile, as neither the seat of blockage nor the drain itself is likely to be quite water-tight, the sewage accumulation proceeds and may remain long before it is discovered, if, indeed, it is discovered at all. This unsuspected blocking, which seems to depend on the tendency of the trap to retain a large proportion—according to experiments from 42 to 79 per cent.—of the solids passing through it, and not to the passage of improper articles into the drain, appears to be very widespread, for in no less than 23 per cent. of a large number of traps (nearly 6500) in the newly built suburban areas round London which were specially examined it was found that actual blocks existed unknown to the occupier or had existed some time previously to the examination. On these facts the committee conclude that the trap is better abandoned if it is not an essential necessity. It is true that efficient measures can be devised to counteract the serious drawbacks referred to, but they are at best costly and complicated.

Important facts bearing on the necessity of the trap came to light in experiments which were carried out to test the power of the trap to act as a barrier to sewer air, as to which doubt has frequently been raised. Thus in Germany, where the trap is frequently absent, and in certain States is expressly forbidden, one reason for not using the trap is founded on the belief that when sewage rises in a sewer—for example, during rainstorms—the trap becomes useless because it is forced by the sewer air under pressure, which thereupon enters the house drain. But the committee's experiments, which were conducted at Bristol, where the sewers are unventilated and are subject to pressure twice daily by the tidal locking of their outfalls, showed that in practice the supposed forcing of an intercepting trap does not occur until the opening of its own connexion with the sewer is first submerged—that is, until the main body of sewer air is cut off—the reason being that systems of sewers, even those which are not ventilated, are not, and cannot be, airtight under practical conditions. It follows, therefore, that, if an intercepting trap is not forced in such conditions, the domestic traps on the house drain itself are not likely to be forced, in the absence of the intercepting trap, by pressure from the sewer; and consequently one of the chief grounds for the intercepting trap is undermined. And when it is remembered that in a house drain there is usually a ventilating shaft also which provides an alternative outlet for air, it must be conceded that the possibility of forcing domestic traps by pressure from the sewer is remote. It was obviously desirable, however, to assume that, in the absence of the intercepting trap, sewer air accompanied by drain air might find its way into a house, if not through

domestic traps, at any rate through drain defects and from the tops of ventilating shafts, and therefore the differences between drain air and sewer air, for the latter cannot escape without the former, had to be considered. Bacteriologically, the difference is very great and in favour of sewer air. The observations of HALDANE and CARNELLEY, and of LAWS and ANDREWES in this country, and of others abroad, have demonstrated the rarity of microbes of sewage origin in sewer air, and these observations have not been seriously disturbed by more recent investigations. In the case of drain air, however, sewage microbes are frequently present in large numbers, a difference which has been shown by Dr. F. W. ANDREWES to be due to the splashing of sewage in drains. The committee argue, therefore, that if microbes of sewage origin are not present in sewer air there can be no wafting of them from sewer to drain as has been apprehended, and that, if drain air with its sewage microbes does gain entry into a house, the chance that they can include any derived from sewer air can only be remote. Moreover, the danger that may arise in this way from drain air may affect the occupants of houses other than of the house to which the drain belongs, so that, while an intercepting trap may guard a house against a bacterial danger which appears to be almost negligible, it does not exclude the possibility of drain air microbes finding their way from one house to another. These conclusions, it may be added, received confirmation by direct experiment conducted by Dr. ANDREWES at a late stage of the investigations. The committee found much general evidence that the admission of sewer air into house drains is not directly productive of specific diseases such as enteric fever or diphtheria, or specially associated with their prevalence. An investigation in Leeds of nearly 7600 houses for drain defects showed that the proportion of such defects, allowing of the entry of drain air into houses, was almost identical in houses invaded by typhoid fever and diphtheria and in houses free from those diseases. The significance of these results is increased by the fact that the intercepting trap is uncommon in Leeds.

An important difference between drain air and sewer air which is sometimes unfavourable to the latter is its smell, which is due not to the presence of sulphuretted hydrogen as is frequently supposed, for this gas is rarely present in sewer air even in minute traces, but to the presence of such volatile substances as indol, skatol, the mercaptans, and compound ammonias. Usually the smell of sewer air is not noticeable if it escapes at a height above the ground, but in certain places sewage is so offensive owing to admixture with trade effluents, or owing to stagnation in bad sewers, that the distinctive smell of the sewer air is perceptible even at a height, and the committee are of opinion that sometimes the intercepting trap may be needful as a protection against smell. Offensive emanations, such as those which may be caused by accumulations of decomposing matter in sewers or house drains, are not merely objectionable from an æsthetic standpoint, but continued exposure to them may no doubt be prejudicial to the health and comfort of susceptible persons, and the committee fully recognise the principle that all such emanations should be prevented from reaching the interior of the house, and that house drainage cannot be too carefully planned for this purpose. In regard to the intercepting trap, indeed, the final conclusion is that the question at issue is narrowed down to the point whether the trap is necessary to prevent smell; and since the experience of districts which have dispensed with it shows that there is less smell of sewer air in the absence of the intercepting trap, the committee express the opinion that it is only in exceptional circumstances that it can be required on this account. Sanitary authorities, if they are guided by the results of this valuable inquiry, may still need to insist on intercepting traps in the special cases referred to, but as a general rule will treat this trap as a contrivance which has been shown to have serious drawbacks uncompensated by any material advantage.

John of Gaddesden.

THE study of the history of medicine has several results worthy of notice. We learn to recognise that many of the ideas of the laity, which now seem to us so absurd, are really survivals of the ancient pathology of our professional forefathers, which naturally take much longer to die out among the public, if once firmly established there, than among the members of the medical profession, though even among ourselves the death agony of ancient routine is occasionally long-drawn out. Again, in the records of the past we often find adumbrations of scientific discoveries and practical methods of far later date which should produce in us a chastened modesty by impressing upon us how little we really accomplish entirely on our own account—we are in very truth "the heirs of all the ages." This inspires us with kindliness and humility when listening to nineteenth century exponents of sixteenth century, or earlier, pathology. There is yet a further lesson to be drawn from the study of the history of medicine—viz., that much that becomes exploded from time to time in the light of new facts discovered and new principles formulated therefrom with which it refuses to square, is ultimately rehabilitated in succeeding generations by the discovery of yet other facts which reconcile points of view that previously appeared to be contradictory. From this we may learn not too vehemently to deny the possibility of reputed facts or cherished empirical practices, because for the moment it would seem that they cannot be true in the light of our modern knowledge. Empirical observations are not necessarily false because they have been saddled with an explanation that apparently cannot hold water.

Fourteenth century surgery, as exemplified in the person of Master JOHN ARDERNE, is fairly familiar to those who delight in old medical records. A somewhat senior but contemporary physician, JOHN of GADDESDEN, affords us an example of fourteenth century medicine. As Dr. H. P. CHOLMELEY, in an interesting and truly scholarly work[1] tells us, JOHN of GADDESDEN was a Court physician—indeed, "our first English Court physician," as ARDERNE was a Court surgeon. He was born probably in 1280,

[1] John of Gaddesden and the Rosa Medicinæ. By H. P. Cholmeley, M.A., D.M. Oxford: At the Clarendon Press. 1912. Pp. 184. Price 8s. 6d. net.

and, according to tradition, at Little Gaddesden, some ten miles from St. Albans, Herts, where an old house that is still, or was till quite recently, standing opposite the entrance to Ashbridge Park is pointed out as having been his residence. He entered Merton College, Oxford, about 1294—undergraduates were youngsters in those days and the curriculum was long. After two years in "grammar" JOHN of GADDESDEN probably began his studies for the Baccalaureate in Arts in 1296, taking the degree in 1300. Three years later, having become a Master of Arts, he would be eligible to enter on the preliminary study of medicine, which consisted in reading certain books of GALEN, HIPPOCRATES, ISAAC JUDAEUS, or NICOLAUS PRAEPOSITUS of Salerno, and in "responding" for two years to the Masters Regent of the Faculty. This accomplished he "incepted in medicine" in 1307, which apparently included the taking of the B.M. degree, and two years later still—viz., in 1309—he probably proceeded to the Doctorate of Medicine. The knowledge acquired by such a course, it is true, must have been largely theoretical, though we incline to the opinion that greater use for clinical teaching was made of the hospitals wherever there was a medical school than Dr. CHOLMELEY seems to believe, having in view the vast development of education, primary, secondary, and technical, shown by Dr. J. J. WALSH, of New York, in his book, "The Thirteenth, the Greatest of Centuries," to have taken place in the preceding century. GADDESDEN'S chief work, the "Rosa Anglica," or "Rosa Medicinæ," was compiled in 1314, largely from the Greek, Arabian, and Jewish physicians, but, as Dr. CHOLMELEY points out and illustrates by quotations from the sections on Hydrops, on Phthisis, and on Leprosy, it contains a large number of personal observations which show that he must have had an extensive practice. In the light of his belief in charms, it seems strange that GADDESDEN (as he is usually called for convenience), differing therein from most writers of his time, makes scarcely any mention of astrological matters. His derivations are odd and often ignorant, for Greek at that time was "practically unknown." For instance, he derives the word phthisis as follows: "It is called *ptisis* as if from *ptesis*, which is retention, because the disease inhabits the body for a long time. Or else it is called *ptisis*, from *tussis*, because it itself is caused by the cough." GADDESDEN was a Bachelor in Theology, as well as a Doctor of Medicine, and held several ecclesiastical benefices, though it seems doubtful whether he ever took full orders.

In an able and critical discussion of the "Rosa Anglica" Dr. CHOLMELEY sums up his impressions as follows: "The 'Rosa Anglica' may be taken to give us a very fair picture of an English physician of the fourteenth century. We see therein a man of good general education and, as regards his medical education, one who is acquainted with the writings of his predecessors. More than this, he must have been an accurate clinical observer. Of anatomy he naturally knew next to nothing, and of physiology even less. The book bears out the somewhat unfavourable estimate of the character of the leech which is expressed by CHAUCER, by LANGLAND, through the mouth of PIERS PLOUGHMAN, and by JOHN of SALISBURY, for GADDESDEN appears to have been fond of his fees, and by no means to have neglected the by-ways of medicine, such as diet, cookery, and the care of the complexion or beautifying of the body." Of recent years his name has been brought forward as the originator of the red-light treatment of small-pox, for he records his success by wrapping up the patient completely in scarlet cloth in the case of the son of the King of England—probably THOMAS of BROTHERTON, son of EDWARD I. and MARGUERITE of FRANCE. Both GILBERTUS ANGLICUS (1290) and BERNARD of GORDON (1305) forestalled GADDESDEN, however, in this treatment, whatever it may be worth, and it is likely from a passage in the Philonium of VALESCUS DE TARANTA (1491?) that the practice had reference not at all to the colour or quality of the light but to a psychical effect, based on the doctrine of signatures. VALESCUS says: "Let the patient be wrapped in woollen cloth of purple, or at least red, colour, that through the sight of the red cloth the blood may be moved outwards, and thus the patient may be kept in a not excessive degree of heat, according to the tenour of the Sixth Canon" (sc. of Avicenna). Other points of special interest in view of recent discoveries are GADDESDEN'S recommendation for hydropic patients to drink their own urine daily (urea has been comparatively recently introduced as a diuretic): the recommendation that milk should be drawn into a vessel sterilised by hot water and placed in another vessel containing hot water, so as to avoid pain and colic after taking milk; and the observation concerning the thickening and rapid clotting of the blood in leprosy. In a review of the condition of medicine and the status of the mediæval physician we are glad to note that Dr. CHOLMELEY does not share the common opinion that anatomy was looked on by the Church with horror and that the practice of dissection was prohibited by a decree of Pope BONIFACE VIII. That this is an entire misconception of the decree has been convincingly shown by Dr. J. J. WALSH (whose writings on mediæval medicine are altogether overlooked by Dr. CHOLMELEY in his bibliography). The decree was directed, not against the practice of dissection, but against that of boiling down corpses of those slain in battle abroad, so that their bones might be brought home for burial, a not uncommon practice during the Crusades. The original text of the decree is given in an appendix. Other very interesting appendices are the text of the enlightened decree of FREDERICK II. in 1241 for the regulation of the practice of medicine in the Sicilies, and a translation of the Isagoge of JOANNITIUS, or HUNAIN, which is useful on account of the explanation it gives of certain technical terms, the understanding of which is essential to a fruitful study of mediæval medicine. It is difficult for us in an age not only whose science but whose environment and ideas, social and general, have changed so completely, to form a just estimate of the mediæval physicians and writers. One great point in favour of GADDESDEN, to which Dr. CHOLMELEY draws attention, is the fact that he quotes more preceding writers, perhaps, than any other writer of his age, thus proving that he was at least widely read, and did not pin his faith on the all-sufficiency of any one or two recognised "authorities."

The National Insurance Act.

THE Provisional Regulations made by the Joint Committee acting generally for the English Insurance Commissioners, the Scottish Insurance Commissioners, and the Welsh Insurance Commissioners, as to the administration of medical benefits under the National Insurance Act are undergoing final revision, and another week at least may yet elapse before their official publication. To a certain extent, their provisions are gradually becoming known, some of them having been published in lay journals, and some having been indicated by the authorities themselves in reply to deputations or in the form of promises. It is now an open secret that when the Regulations do appear important figures in them will remain to be settled later, so that we can hardly expect the situation between the Commissioners and the medical profession to be absolutely clear until late in October. Money is not the only thing at stake. This is sufficiently shown by the attitude of many thousands of medical men whose pecuniary interests will be untouched save in the remotest way by the Act. But the money questions are of extreme importance to the public and the medical profession, for it is only when the actual terms are on the table that the issues will be ripe for further discussion. The delay will give the medical profession very little time in which to see how far the minimum demands of the British Medical Association, speaking on behalf of the great majority of the medical profession, are really met by the National Insurance Act, with its supplementing Regulations and Rules. Again, the amount of official work to be got through by the Commissioners between the last week of October and Jan. 15th, 1913, must be so serious that it is difficult to believe that a measure, thus unsettled in essentials within three months of coming into force, can run effectively.

One thing is certain, that whatever scheme, or whatever amalgamation of schemes, may come into existence to meet the demands of the insured and the purposes of the Act, all the proceedings will be tentative. The alternative schemes for a Public Medical Service, drawn up by the British Medical Association, have now been submitted by the State Sickness Insurance Committee of the Association in a revised form for the consideration of the divisions, and it is clear that as far as possible the Association intends to be ready to meet the public want. Manful work has been done, but both the schemes of the Association are admitted to be of an experimental nature. Similarly, the Regulations to be issued by the Insurance Commissioners are deliberately intended to be provisional.

TROPICAL DISEASES BUREAU.—The honorary managing committee and staff of the bureau are as follows: The Right Hon. Sir J. West Ridgeway (chairman), Sir John Rose Bradford, Surgeon-General Sir Arthur M. Branfoot, Surgeon-General Sir David Bruce, Brevet Lieutenant-Colonel Sir William B. Leishman, Sir John M'Fadyean, Sir Patrick Manson, Sir Ronald Ross, Mr. Stewart Stockman, Mr. J. A. C. Tilley (representing the Foreign Office and Sudan Government), Mr. H. J. Read (representing the Colonial Office), with Mr. A. Berriedale Keith, of the Colonial Office, as secretary. Dr. A. G. Bagshawe, of the Uganda Medical Staff, is director; Dr. G. C. Low, of the London School of Tropical Medicine, is assistant director; and Mr. R. L. Sheppard, librarian.

Annotations.

"Ne quid nimis."

BICYCLE ACCIDENTS.

THE regrettable deaths of two highly respected members of the medical profession have recently been chronicled as due to bicycle accidents. On August 31st Dr. George Garlick, who had retired from practice in Gordon-square and was living near Pulborough, in Sussex, was returning to his home from Littlehampton, where he had been staying, when he apparently lost control of his machine on a hill at Findon or met with some obstruction which checked his front wheel. As a result he was thrown violently upon the roadway, fracturing the base of his skull, and died without recovering consciousness at Worthing Hospital, whither he had been conveyed in a passing motor-car. In the other instance referred to, Mr. W. F. B. Eadon died at his residence at Hambrook, near Bristol, his death being preceded, but not immediately, by a bicycle accident, from the effects of which he had failed to recover. As the former gentleman became a Member of the Royal College of Surgeons in 1874, and as Mr. Eadon was in his sixty-fourth year, it is apparent that they did not belong to the generation which has learnt to ride the modern "safety" bicycle almost from infancy and has acquired complete familiarity with it at an age when contempt for danger rather tends towards safety than otherwise. The young man of to-day who has balanced himself on a bicycle almost as soon as he could walk, has as great an advantage over him who has learnt to do so in later life as is the case in the acquirement of the art of the horseman. The feats which he performs daily, the hills he descends with safety at high speed and climbs with comparative ease would have been deemed phenomenal when, not so very long ago, in London ladies and gentlemen of fashion took constitutionals on bicycles for a season of an early morning in Battersea Park. Many of them will almost have forgotten how carefully they trundled themselves round at a pace limited by regulation to eight miles an hour, and how a West End club opened a breakfast tent for its bicycling members and their friends on the grass beside the roadway. Improvements in the machine, including the free wheel and the rim-brake, have since then contributed to the safety of modern riders from accidents to themselves and have rendered them less dangerous to pedestrians by securing a degree of control over all movements which at the date we are recalling would have seemed almost astounding. It is principally in the streets of busy cities such as London that the bicycle continues to be a more or less fertile cause of accidents both to its rider and to others owing to circumstances of traffic and congestion which some classes of cyclists appear recklessly to disregard. In those early days, to which we have referred, the question of the advisability of "taking up" or "dropping" the bicycle was one frequently referred to the medical adviser of the person who wished to display an orthodox accomplishment. Now that bicycling has long ceased to be a fashionable amusement and has found its proper place as a convenient mode of locomotion for those used to it, or unable to afford motor cars or unwilling to embark on motor-cycles, it probably has little direct effect upon its votaries for good or ill. It has, however, combined with other causes to render walking as a form of active exercise almost obsolete, as the medical profession can see among its patients.

THE WASHINGTON CONGRESS.

THE final preliminary announcement of the authorities responsible for the Fifteenth International Congress on Hygiene and Demography, which meets at Washington on Sept. 23rd next, has reached us. From this it appears that there is a considerable increase in the number of papers to be read. We note 36 names of contributors from England or the British colonies set down to take part in the discussions or to read papers. All these members of the congress will not respond when their names are called, but if a fair proportion of them are in attendance some good account should be rendered of our nation's work in the cause of sanitation. Canada as a close neighbour is naturally the best represented of the British colonies or dependencies. The official opening of the Congress is to take place at 10 o'clock Monday morning next, and at 3 o'clock in the afternoon it is announced that the President of the United States will entertain the delegates at a garden party. This is a great improvement on the programme of the Tuberculosis Congress of four years ago, which at best only obtained eleventh hour recognition at the hands of the State and former President. The same evening Sir Thomas Oliver is to deliver an address on "Dust and Fume" in the auditorium of the New National Museum, preceding a reception organised by the Pan-American Union and the American Public Health Association. On Tuesday, apart from the labours of the Congress, there are various excursions for the ladies of the gathering, and on Wednesday afternoon the Government places a ship at their disposal for a trip on the River Potomac. During the afternoon of Thursday there will be aviation exercises and in the evening a reception at the New National Museum. The afternoon arrangements generally are based on the idea of entertaining the ladies present, for the men are expected to be working at the Congress, the usual "picnic" membership not being encouraged. But is it fair to suppose that it is the women only who try to shirk the work of these gatherings, and who prefer to find themselves on a lawn, a golf course, or a river, rather than in a probably stuffy sectional meeting room? Undoubtedly the defection of members from the meetings is rightly resented by those who take the business of these congresses seriously, and this ought to mean all who decide or are delegated to attend. The International Congresses of Hygiene represent important practical interests. This is not well enough recognised in England where we are perhaps too apt to imagine we can manage our own business without advice or new ideas from other countries. But these latter, greatly to their advantage, are more modest and study and adopt what is done by the skilled and highly considered representatives of other countries. Hence, much of what we have done well in England is imitated and sometimes improved upon in various countries. We should be more prompt in returning such compliments.

ANKYLOSIS OF THE SPINE.

IN the present number of THE LANCET we publish a paper by Dr. Jean Dardel, of Aix-les-Bains, on the various clinical forms which ankylosis of the vertebræ may exhibit. The subject is by no means easy, and in fact it is only within the last 20 years or so that any serious attempt has been made to classify the various forms which are seen, and it is not at all surprising in a subject so new and so difficult that up to the present time those who have dealt with the matter have not arrived at anything like unanimity. That there are several different forms cannot be doubted, for clinically many differences exist, but there is much doubt whether these differences correspond or not with etiological and pathological differences. It is clear that in a certain number of cases an injury is directly associated with the appearance of the ankylosis, but what exactly has been the lesion is hard to say, for rarely is it possible to examine the parts except after a great interval of time, as there is no immediate danger to life. Various lesions have been suggested, such as rupture of the anterior common ligament and fracture of a vertebra. Yet even in the traumatic cases two classes may be seen, for in some of them there is a very definite family history of kyphosis. Of the remaining cases there are some of the form named by P. Marie rhizomelic spondylosis, in which without the formation of any osteophytes the bones are welded together by the ossification of the ligaments with the formation of a general kyphotic curve. In yet another group there is a great formation of osteophytes, growing from the edges of the articular surfaces; and lastly, cases are seen in which the condition present is an osteo-arthritis. It is thus seen that there is much scope for investigation of this group of diseases, and Dr. Dardel's paper will be found to be a very clear introduction to a difficult subject. The etiology is even more obscure than the pathology; trauma certainly has a share in the causation, but some other factor must be present; and of the other cases all that can be said is that probably the cause is microbic or toxic in nature. As to the treatment, this will vary with the form of the disease present, but in the paper to which we have referred will be found a *résumé* of what can be done.

THE SCHOOL CURRICULUM AND THE PROPER DISTRIBUTION OF MEALS AND RECREATION.

THE stand taken by the *Cape Argus* in its recent attack on the school methods in Cape Town seems reasonable. The "one session" system strikes us as a monstrous absurdity. To start growing children into school at 9 A.M., keeping them continuously at work, with only a five minutes' interval, until 12.15 P.M.; then, after a break of only 35 minutes—viz., to 12.50—which is to serve them both for relaxation and food, to start them in again at school-work until 2, and in the case of high schools until 3.15, is to keep the children in a state of stress and strain and inadequate nutrition that must eventually militate against their general fitness. With regard to meals, the evening is not the time for the substantial meal of the day for children, who should be in bed by 9 o'clock, though it may suit adults admirably, who usually stay up long enough afterwards to permit of their retiring to sleep without a heavy undigested meal inside them. Adults and children have to be treated on altogether different principles, seeing that their physiological needs are in many respects very different. Given a sufficient time for the consumption of the meal and for recreation and freedom from mental strain afterwards, the midday meal is the most important for the child. His evening meal should be light, and should consist of food that will be already more or less digested when some two hours later he retires to rest. If from 9 till 11 were given to school, then ten minutes' interval for relaxation, followed by further school work until 12.30, better results would be secured. A break of at least two hours would then allow ample time for a substantial meal to be taken leisurely, followed by rest and recreation, with a complete cessation of all mental strain. Then school work once more from 2.30 to 4.30, or even 6 P.M. At least two, or even three, afternoons a week should be half-holidays, and the afternoon work need not be at the same hours in winter and in summer. This division of the time would give an average of from five and a half to six hours' school work on three days a week, and of three and a half hours on the other three, making a total of approximately the same number of hours of school work weekly as in the "one session"

method. Of course, the actual hours of study are very short compared to those at English public schools. But such an arrangement possesses the advantages of lessened stress and strain, of adequate opportunity for suitable meals at proper times, and of a proper distribution of work and recreation. We are unable to believe that, from a purely physiological viewpoint, local conditions can materially alter the value of this method of dividing up work, food, and recreation, though, of course, climatic conditions might render desirable some modification of the particular hours chosen, and economic conditions might in some cases create difficulties, for which, however, a solution could probably be found without sacrificing the principles above laid down. The three essentials of the growing age are absence of too prolonged application, either physical or mental, equal distribution of feeding arrangements, with sufficient time, not only for the leisurely consumption of the meal itself, but for a slight rest both before and after eating, and an adequate apportionment of time for recreation, to include the opportunity for out-of-door life under the beneficent influences of fresh air and sunlight. Any scholastic programme not based on these principles appears to us to be risky.

AUTOTOMY.

Professor Paul Reclus, in a very interesting clinical lecture at the Hôtel-Dieu, has commented on the courage and stoicism necessary for the act of what he calls "autotomy," or surgical operation upon one's own body. He described at some length four examples of this heroic proceeding. The first story is that of a French surgeon who, having acquired a small outgrowing tuberculoma of the right index finger following an operation wound, determined to excise it under cocaine anæsthesia. This he did, surrounded by his class, in a curiously unsurgical way, by fixing the instrument—first a scalpel, then a sharp spoon—in the left hand and performing all the necessary movements with the diseased *right* hand. In spite of this novel technique the result was quite satisfactory. His only discomfort was a little nausea at the unpleasant sensation of scraping his own periosteum; this was, however, corrected by a sip of hot coffee. In the second case the surgeon operated on himself for bilateral ingrowing toe-nail, apparently without pain and with absolutely satisfactory result. The hero of the third story was a Turkish military surgeon attached to Professor Reclus's own clinic, who was operated on for double inguinal hernia under local anæsthesia with such complete success that he determined to remove for himself a troublesome varicocele, operating according to Professor Reclus's technique. The proceeding was quite painless and the result perfect. The fourth "autotomy" has apparently attained some degree of notoriety, thanks to the French daily press; so much so, indeed, that the surgeon concerned, M. Regnault, a naval medical officer, has felt it necessary to communicate to his professional colleagues an unadorned account of the reasons by which he was led to undertake a radical cure of his own hernia. This account he gave through the medium of Professor Reclus's clinical lecture, which was published in *La Presse Médicale* of August 17th. His chief motive was to produce convincing evidence in support of his championship of local anæsthesia, which he finds suitable for certain major operations—a fact of practical importance, since it enables the surgeon to tackle, single-handed, emergency operations on patients whose lives might be lost by the delay sometimes involved in securing the aid of an anæsthetist. M. Regnault anæsthetised the area of operation by injecting cocaine into the several layers of tissue concerned, after a preliminary injection of morphia into the subcutaneous tissues of the thorax. He guarded himself from disaster by enlisting the help of two colleagues, who stood by prepared for action in case they were needed. However, all went well, and there was neither pain nor mishap. These successful "autotomies" supply Professor Reclus with an admirable text for the doctrine which he is never tired of preaching, the application of local anæsthesia to a large section of major as well as minor surgery; indeed, he claims that it is the method which ought to be used in preference to general and spinal anæsthesia for more than half the operations at present in vogue. This is possibly true; but we suspect that there is another side to "autotomy," and that before now a surgeon who has embarked bravely on the task of incising his own skin under local anæsthesia has been very glad to hand over the completion of the operation under general anæsthesia to a surgical colleague.

THE HIBERNATING MARMOT AND PLAGUE VIRUS.

THE rôle played by the rat in India as propagator of the plague virus is considered to depend upon there being a continuous succession of these animals under conditions favourable to their infection by the rat-flea. In Transbaikalia and Manchuria, however, where plague is endemic, and where it is not believed that rats play such an important part in the preservation of the virus as they do in India, their place appears to be largely occupied by the Tarabagan marmot, and as this animal hibernates during the long and severe winter it is at first difficult to see how it can be such a focus of infection as it really is, unless, indeed, the behaviour of the virus is far less fatal than in the case of the Indian rat. MM. Ed. Dujardin Beaumetz and E. Mosny, however, have just contributed to the Academy of Sciences in Paris some observations on Alpine marmots, which appear to show that these animals while hibernating may be inoculated with the virus of plague without fatal result until they are aroused artificially or by the incidence of spring temperature. Thus, one marmot inoculated during hibernation on Dec. 27th and kept in a cold chamber did not die until May 1st, while another which had been kept until the summer and then inoculated died in two and a half days. This observation would seem to agree with those made by M. Dubois, which showed that the marmot while hibernating has great power of resisting tuberculous infection. Also, with observations of MM. R. Blanchard and Blatin, showing that in a state of hibernation marmots were quite immune to various trypanosomes provided they were not aroused for at least five days after the inoculation.

A BUDDHIST SNAKE-CHARM.

THE Bower manuscript, of which the exhaustive introduction has now been published under the auspices of the Government of India, is a debased Sanscrit work of the latter part of the fourth century of our era. Written apparently by four scribes on 51 bark leaves, and first acquired by Lieutenant (now Major-General) Bower, who bought it from a treasure-hunter in Kuchar in 1890, it deals largely with medicine as known to the ancient Hindoos. Parts I. to III. treat of medicine alone, but are imperfect; Part VI., a treatise on a charm against snake-bite, is, however, complete and is published with a translation in conjunction with the present introduction. The reason for its preservation intact is the simple one that it was written on a superior quality of birch-bark, whereas the other parts of the manuscript were inscribed upon what is supposed to have been an old store of this writing material brought from North-West India to Eastern Turkestan by learned emigrants.

The boundaries of our knowledge of cures for snake-bite cannot be said to be enlarged by this industriously edited publication. The "great Mâyûri spell," as the charm is called, is of considerable length and consists in many places of jargon. It is put into the mouth of Buddha, and is delivered by him to the venerable Ananda, who has applied to him for a cure for the mendicant Svâti. This mendicant has been bitten by a cobra and lies in a state of collapse, foaming at the mouth and rolling his eyes. Ananda arrives in great haste and seeks prompt advice, but Buddha's answer extends over pages. Here and there are strings of jargon words (itti mitti, huhu huhu, and so forth), which are luxuriously extended by the Blessed One. Still, quite early in the charm we find the use of a ligature advised, as thus: "Grant him safety, security, defence, salvation, protection, relief and recovery, preservation from danger, counteraction from the poison, destruction of the poison, and apply a ligature to the wound, a ligature to the vein!" In Part VII. of the MS., which repeats the charm, we learn that there are 404 kinds of diseases due "to disordered air or bile or phlegm or the three humours jointly." But we discover little else, and are still plainly in those regions of magic and exorcism from which perhaps the "wisdom of the east" has at no time wholly emerged.

A REVIEW OF THE CONGRESS OF ALIENISTS AND NEUROLOGISTS OF FRENCH-SPEAKING COUNTRIES, 1912.

BY ROBERT JONES, M.D. LOND., F.R.C.P. LOND.,
RESIDENT PHYSICIAN, LONDON COUNTY COUNCIL ASYLUM, CLAYBURY; LECTURER ON MENTAL DISEASES, ST. BARTHOLOMEW'S HOSPITAL; AND EXAMINER IN PSYCHOLOGICAL MEDICINE, LONDON UNIVERSITY.

FROM April 1st to the 7th this year the Twenty-second Annual Congress of Alienists and Neurologists of France and of French-speaking Countries, consisting of a membership of about 300 adherents, was held in Tunis, and I attended as a delegate of the Medico-Psychological Association of Great Britain and Ireland. More than 30 institutions for the care and treatment of mental cases were associated with the Congress, and numerous delegates representing learned societies as well as foreign countries attended.

Summary of Proceedings.

The President of this year's Congress was Dr. Mabille, medical superintendent of the La Fond Asylum at Rochelle; Dr. Arnaud, physician to the Mental Hospital of Vanves (Seine), was Vice-President; and the General Secretary was Dr. Porot, the very able and energetic physician to the French Hospital in Tunis. The chief papers announced for discussion were by Dr. Régis, professor of clinical psychiatry in the Faculty of Medicine at the University of Bordeaux, who contributed a very full and exhaustive paper on the Care of the Insane in the French Colonies and Dependencies, with a review of their treatment in the adjoining colonies such as those of England and Holland. Professor Régis was assisted in his paper by Dr. Reboul, of Annam. Another paper was by Dr. Chavigny, major of the French Army Medical Service, on the Mental and Nervous Symptoms Associated with Malaria, obviously one of considerable importance in view of the expansion of French colonial government; and a third paper by Dr. Dupré, one of the teachers and a Fellow of the University of Paris, on Mental States arising from and connected with Perversions of the Natural Instincts. Although these were the three main subjects, other papers connected with neurology or psychiatry were presented to the Congress for discussion, among them being one on Goitrous Insanity by Dr. Fraikin and Dr. Grenier de Cardenal, one relating to Insanity and Renal Disease by Dr. Beriel, and one by Dr. Gelma on Delusions of Persecution. Other papers were by Dr. Petit, Dr. Mignot, Dr. Adam, and Dr. Levassort. A valuable report upon an experimental study relating to the association of ideas in the insane was presented jointly by Dr. Auguste Ley, professor in the University of Brussels, also physician to the Mental Sanatorium at Fort-Jaco, Uccle, near Brussels, and Dr. Paul Menzerath of the same hospital laboratory. Another paper was by Dr. Levassort on Degeneracy in its Relation to Perverted Instincts, and two others bore upon the same subject—viz., one by Dr. Berillon, relating to the influence of suggestion upon normal as contrasted with abnormal instincts, and the other by Dr. Simonin, who related his experience in the French army in regard to mental enfeeblement, a clinical and medico-legal study; and one by Dr. Haury on Hooliganism in the Army and their Rational Treatment, which formed a suitable complement to the chief paper of the day by Dr. Dupré.

Among those who attended the Congress were Dr. Semelaigne, of Neuilly-sur-Seine, the permanent secretary of the Congress, well known in England and America for his contributions to psychiatry and also for his most interesting volume of the early history of the insane recording the works of Pinel and Tuke—a volume which every psychiatrist should read and which has just been published by Steinheil, of Paris; Dr. Antheanme, chief physician to the Mental Sanatorium at Rueil, near Paris; Professor Gilbert Ballet, of the Faculty of Medicine in Paris, and one of the physicians to the St. Anne Asylum; Dr. Croustel, of the Lesvellec Asylum, Vannes; Dr. Andrieu, of Agen; Dr. Charuel, of Châlons-sur-Marne; Dr. Hercouët, of St. Mandé; Dr. Manheimer Gommès, of Arago; Dr. Vallon, assistant physician to the Ste. Anne Asylum, Paris; Dr. Ameline, of Chezal-Benoit, Cher; Dr. Mercier, of Saint-Alban, Lozère; Dr. Jean Abadie, professor of psychiatry at Bordeaux, who reported the proceedings in *La Presse Médicale*, to which I am greatly indebted; Dr. Famenne, of Florenville, Belgium; Dr. Daday, of Privas; Dr. Jacquin, of Ste. Madeleine, Bourg; Dr. Simonin, professor of medicine at the Val-de-Grâce, Paris; Dr. Vigouroux, of Vaucluse; Dr. Beriel, of Lyons; Dr. Lacronique, of Tunis; and Dr. Clerfayt and Dr. Maere, the delegates of the Belgian Government.

Aim and Attractions of the Congress.

The Congress meets once a year in some town in France or one of the countries where French is spoken. Last year the Congress met at Amiens, and a number of the Congressists journeyed to London and, at the invitation of the London County Council, visited the laboratory and the asylums of the Council at Claybury, where they were received by Sir John McDougall and the chairman of the subcommittee of Claybury Asylum, Mr. T. Chapman, being shown over the two departments by Dr. F. W. Mott and myself.

The aim of the Congress is the study and discussion of some questions connected with psychiatry, neurology, and forensic medicine relating to the insane, and the French language is obligatory at the discussions. The duration of the Congress is a minimum of four days, which, so far as possible, must be consecutive, and there are two meetings each day, one in the morning at 9 o'clock and the other in the afternoon. It is customary to make some visits to asylums for the insane in the immediate neighbourhood of the town or city fixed for the Congress, and this helps members to keep in touch with each other and to kindle a spirit of emulation in the evolution of administration, and of course there are the usual excursions to places of interest. Apart from the attractions of the Congress the prospect of again meeting those of my French fellow-workers who had visited Claybury, of seeing their institutions for the special care and treatment of the insane, and especially the one in a new colony, of discussing points of diagnosis, nomenclature, and treatment, was an allurement which implied entertainment as well as instruction; add to this the anticipated pleasure of travelling through France from north to south, particularly of making a transit from Europe into Africa across a sunny and rippleless Mediterranean of azure blue—which, alas! was not realised—together with the charms of seeing new people and of experiencing the fringe of the desert, and above all of witnessing the outburst of bud and bloom, the "vernal impulse" after the dreary chill of a London winter,—all these made the prospect of a visit to Tunis an exciting as well as an exhilarating holiday.

Members of the Congress steamed from Marseilles on Friday afternoon, March 29th. We were received on board the *Eugene Pareire*, of the Compagnie Générale Transatlantique, by the President of the Congress, Dr. Mabille, also by Professor E. Régis and others, and we settled down to what we hoped was to be a 36 hours' pleasurable crossing of the blue Mediterranean. Such was far from being the case, however, and the party—rather bedraggled—arrived in Tunis early on Sunday morning, March 31st—Palm Sunday—being greeted by Arabs, Moors, and a mixed assemblage of swarthy but respectful searchers for your "bag and baggage."

Opening Meeting.

The Congress opened at 10 o'clock in the Palace of the French Societies—in brilliantly beautiful weather, the sun and sky being seen as they are never seen in England. The opening ceremony was of a friendly though formal character. The central figure was M. Alapetite, the Resident-General, who is the Minister of France in Tunis, and near to him on the platform were Dr. Porot, the general secretary of the Congress, physician to the French Hospital in Tunis and the originator of the New Mental Hospital; the Inspector-General, M. Granier, an able administrator of "public assistance" and representing the French Minister of the Interior; Dr. Grall, the medical inspector who represented M. Lebrun, the French Minister for the Colonies; Dr. G. de Couvalette, the Principal Director of the Naval Medical Service, who represented the French Admiralty Department; Professor Simonin, Principal Professor at the Military Hospital of Val-de-Grâce, the delegate representing the French Minister of War; and Surgeon-Major Cazenove, of the Army Medical Service, who also represented the French Minister for War. There were present on the platform in addition M. Blanc, the administrator and general secretary of the Tunisian Government; MM. Curtelin and Chabert, Vice-Presidents of the Municipality of Tunis; M. Roy, Minister Plenipotentiary; M. Reverdin, the Public Prosecutor of the French Republic in Tunis; also various members and officers of the Congress, including delegates from Russia (Dr. Bagenoff), Belgium, Switzerland, Holland, Italy, as well as of Great Britain and Ireland (the writer).

Address by the Resident-General.

The Resident-General, M. Alapetite, welcomed the members of the Congress in the name of His Highness the Bey of Tunis (who is nominally drawn into these salutations, but in regard to which he appears to betray no interest), and delivered a very able address. He was glad that members had the opportunity of seeing the capital of the French Protectorate, which, although centuries behind civilisation, had yet developed so much within the 30 years of French Government that it was considered a suitable place to receive this Congress. Tunis paid 50,000,000 francs in taxation, which upon the ratio of the population is exactly one-half of what France pays; by which it might be argued that the mean income of the Tunisian was also one-half that of the Frenchman, but this was far from being the case, the population of Tunis being mainly very poor, and consequently public or Poor-law assistance was a most difficult task. When the Protectorate of Tunis was first established assistance to sick and needy Europeans had virtually no existence. It was only organised by degrees, and then largely by private persons and private benevolence. Later it was possible to assist private enterprise by a small State subvention and the commencement was made towards helping the two extremes of life—viz., young children and old persons who were most in need. In this connexion he thanked, and deeply so, those devoted French people who, of their own free will and in their own time, had constituted the French Public Welfare Society. A heavy burden upon the administration of Tunis was the building and supporting of a civil hospital, to which is now attached a wing or pavilion for mental cases, but here in Tunis they had public spirit and were ready to undertake the necessary expense. The arrangements for the French insane hitherto had been to transport them to their own country, and as the European French population was really less than that of two or three cantons they had not up to the present been able to afford a mental hospital. Even in France there were several departments without one, and when established the cost was shared by the State, the department, as well as the local community or parishes. The places for early observation and treatment of these sad and appealing cases were, in Tunis, usually defective and always insufficient, and it was to provide a suitable home for their early treatment under the most advanced medical and hygienic conditions that the Tunisian Government had built their new wing to the General Infirmary, and which he hoped would be a credit to its "public assistance" towards the poor. He stated that for those who were very poor, whether natives or foreigners, there were, even before the French Protectorate in 1880, some kind of place into which the poor insane could be received, either at the request of their families or through the intervention of the State, and such places still existed, but needed much improvement. Medical aid for the necessitous poor must be an organisation of considerable time before it became effective, and as to hospitals, it was necessary to convince the natives that the treatment of their families in them was kindly and real. The confidence of such a *clientèle* must first be won, but in this regard the work of the few French doctors in Tunis was having a markedly beneficial and moral effect. Especially important must this confidence be before the new mental hospital could be fully appreciated. This little hospital for mental cases, the Resident stated, would be open to all races and to all nationalities, and they in Tunis were prepared for the cost of this heavy burden, because it was an advanced and a great step in the progress of civilisation. The Government would gain by being saved the necessity of deporting their insane to France; the families and friends of the insane could visit their afflicted relatives; and the art of medicine would be benefited by the additional experience gained from the study of mental and nervous diseases.

Social Functions: Visit to Crèche and Dispensary.

On the second day the organisers and officers of the Congress, together with the delegates (including myself), were received by the Resident-General, M. Alapetite, and his wife, with whom they subsequently lunched in the Maison de France (The Residency). Following this a garden party was given by the hostess, who was "At Home" to members of the Congress and their wives. The hospitality, kindness, and delicate touch of refined grace which the hostess displayed towards her guests were especially noted, and on the next day, when she received all members of the Congress at a crèche which she herself had established, and later in the day at the special dispensary which she had inaugurated and was supporting and which bears her name, it was seen by all of us how much benefit the civilisation of France was conferring upon her colony, also how much of this was done through the "charity of wisdom" as well as through the "charity of sympathy" which the Resident-General's wife had initiated and continued. One of the most striking sights of Tunis in my opinion was the interest shown by Mme. Alapetite in works of philanthropy and charity. In nurses' costume she organised and supported the staff of devoted women who looked after the French poor as well as after their infants in the dispensary and crèche. I felt this civilising effect of French women in their own colony to be the most striking, stimulating, and heart-stirring feature of medical assistance outside my own country and I was most gratified with the experience.

Opening of Wing for Mental and Nervous Diseases.

The opening in the General Hospital of a new wing for mental and nervous diseases in Tunis was an occasion of much mutual congratulation. Dr. Porot, the congressional secretary, performed the ceremony and made graceful references to the help he had received from the Resident-General and from M. Blanc, the secretary of the Government of Tunis. There are complete sitting and observation rooms for day and night, well-ventilated and large single and associated rooms, baths, lavatories, case-taking rooms, and gardens. It is proposed to treat the acute cases, of which there were several on the day of opening, in this new block, and when recovered they are to be transferred to the General Hospital and thence discharged. This plan of dealing with insanity emphasises the view that mental disease is primarily physical disease, and such treatment tends to break down the prejudice against mental disease in a way that no other method can do. It certainly deserves recognition in our country.

Care of the Insane in the Colonies.

The paper by Professor E. Régis, so well known to all English-speaking alienists and psychiatrists, was upon the

Care of the Insane in the Colonies, referring particularly to French colonies, but extending his observations to the work done in English colonies, including Egypt, India, Australia, and the Cape. This paper, covering over 200 pages of type, was given to the Congress by Professor Régis in about an hour and a half. It is an invaluable and laborious compilation of the treatment of the insane in many lands, and the part relating to France was collected from naval, military, colonial and civil medical men throughout the French colonies. So much appreciated was this report that the Colonial Minister has given it State aid in order to make it more widely known. The work is in three parts: the first is a historical survey with a general summary of what has been done up to the present in the possessions of other countries; the second records what has been done in the French colonies; and the last part is devoted to recommendations. As to the last part, first Professor Régis urges (*a*) the establishment of "mental" annexes to general hospitals for special mental or delirious cases, such as those suffering from early forms of insanity or brain lesions accompanied with mental changes, as the study of such cases will induce an interest in psychiatry which is essential from the medico-legal standpoint, and also will assist the duties of the colonial military and naval surgeons. Insanity is curable in inverse relation to its duration, and the education of the young practitioner is bound to form a great part of the prevention of insanity. Professor Régis quotes his own University of Bordeaux as thus encouraging the early diagnosis and treatment of insanity, and the interest kindled among its students in the study of mental diseases has helped to formulate public opinion, and has even brought influence to bear upon lunacy administration. (*b*) He calls attention to the variable and defective legislation on the subject in the different French colonies. In some, such as Tunis, there are no laws relating to the insane, in others, only a modification of the French law of 1848, and he advocates the same legislation for the colonies as exists in France, or to leave each colony to enact statutes suitable to its local needs. (*c*) The erection of special receiving houses as a first line, and places in touch with these for the transfer of the more chronic on colony lines as the second line, but provided with means for varied occupations, and these establishments to have for the subordinate medical staff native doctors, but the chief to be an experienced psychiatrist. Following upon these recommendations, he gives the necesary indications for all the French colonies. He urges his views because those who serve in the colonies are entitled to have places to go to when they break down from any of the acute psychoses, and he urges that those Europeans whose cases have become chronic should be returned to their native land. He further urges that the expansion of colonial methods should provide at least some care for colonial troops and others who may suffer from insanity; such arrangements would be only humane and should be foreseen and prepared for. In this part of his paper he makes a strong crusade against alcohol, which he states in some colonies of France to be a worse enemy than sleeping sickness or malaria. Such a crusade can best be carried out by the education of the native population, and also by aiming at lessening the prejudice against insanity and by encouraging its early treatment. Lastly, he advocates a special examination (including one on the mental side as to family histories and predisposition) of all those who go into the colonies, whether as civil servants or in a military capacity. Such an examination would probably save much expense and many heartburnings as a preventive measure. The historical record of the French colonies in regard to the care of the insane shows that the older colonies, such as Guadaloupe and Martinique, had some modified treatment for their insane since the early part of the nineteenth century, but the more recent colonies have no treatment of any kind, others possibly have some indifferent and unsuitable accommodation in the chief town of their colony. The forms of insanity among a new people are mostly of the toxic and infectious kind, essentially curable if only taken in time. The incidence of insanity among Europeans in the French colonies averages about 1·7 per cent., and the number of French soldiers brought back into France every year is about 50. Whilst England possesses 74 asylums in its colonies, Australia 26, and the Dutch Indies (Java) three, Algeria has none, yet it is estimated there are at least 4000 insane persons there; 1230 of these are already in the asylums of central France. Tunis has now a special mental hospital of its own for Europeans, but an asylum for 200–300 is really wanted in addition for the use of the native population, who, when insane, are now transported in a deplorable state to the Asylum of St. Peter in Marseilles, a few suitable cases only being housed in a modified infirmary for the aged and the vagrants. In Morocco it is estimated that there are 15,000 lunatics with no provision at all for their care. In West Africa (Senegal) all the Europeans and some natives are sent to St. Peter's Asylum in Marseilles, others may be detained in the civil hospitals. In French Equatorial Africa they are similarly dealt with. In Madagascar there is at present satisfactory accommodation for 100 patients, but more is needed. In French Indo-China for 18 millions of people there is no accommodation at all for the insane, but Europeans may be sent on to the asylum in Marseilles. It is interesting to note that general paralysis is rare in Tunis, and melancholia common, especially among the Jews, but I propose to make this matter the subject of some remarks in a later paper.

The discussion on Professor Régis's paper was full and interesting, and various communications relating to the care of the insane in the different French colonies were made.

Dr. A. Marie brought a report of the new asylum in Cairo, and also recorded what was being done in our own colonies and other dependencies as well as those of Holland. Dr. Grall referred to Professor Régis's wide influence and persistent efforts to improve the lot of the insane, both at home and in the colonies, by his keen teaching and strong advocacy and his widely read contributions to mental literature. Dr. G. Martin sent an account of the psychiatric teaching in vogue at the medical school for military and naval medical men at Marseilles. M. Blanc referred to the effects of alcohol in Tunis, which were to some extent controlled among the native population by their Mahommedan religion. He alluded in detail to what was now being attempted for the insane in Tunis. Dr. Vital Robert presented an account of the new scheme for the treatment of the insane initiated under him in Madagascar, and he quoted statistics relating to insanity and the increase of crime in the island due to alcohol since the French occupation. Dr. Simonin referred to the anxiety and troubles caused in the recent Russo-Japanese War by cases of mental disease which occurred, both among the troops and the staff, and he suggested the possible assistance which may be afforded by help from psychiatrists during the progress of a war. M. Cazenove described the treatment of the insane by native nurses in Africa as gentle, forbearing, and kind, owing partly, no doubt, to the religious and sacred feeling which the presence of insanity excites in the native mind. He referred to the injurious influence of alcohol throughout the French colonies. He pointed to the many dangers, mental, physical, and moral, from this cause and referred in his remarks to the form and frequency of insanity among the natives, also to its origin and its relation to religious beliefs.

Various resolutions bearing upon the subject of the insane in the various colonies were put to the Congress and unanimously carried. A special resolution relating to the great public peril incurred through the increased use of alcohol in the colonies was also passed, praying that legislation should be enacted "to control its use and sale, as it was one of the great agents of crime and insanity and a deadly poison to the native races."

Hooligans in the Army and their Rational Treatment.

This interesting paper, which only a conscription country can fully realise, was read by Surgeon-Major Haury. He pointed out that there were many of these in the French army, because they had not received sufficiently severe sentences to be sent into the battalions of Africa. It was recognised that their presence with sane and normal youth was objectionable, and a Bill should be passed to separate them. These persons are very dissimilar medically, varying from the accidental to the habitual criminal on the one hand, to those who are weak-minded cranks on the other. Many of them form recruits for asylums for the insane, and include cases of primary dementia, perverts, paranoiacs, and moral imbeciles. What would be the treatment if these were rejected by the army, and would such be possible? Such a scheme would be twice blessed. Dr. Haury suggested that the army would benefit by their absence, that society would benefit by their withdrawal, and they themselves would receive rational

treatment. In a conscription country this must be a very serious problem, as every person has to serve his time or advance reasonable excuse for not doing so. No excuse would be offered by the weak-minded, the degenerate, and the feeble, but they would, and do, create infinite trouble. The paper suggested a general examination, culminating in the psychiatric study of all offenders. Neither the sentence received nor the crime committed would serve as a satisfactory criterion of the mental state. There must first be a sorting of these offenders, who were all characterised by different mental deficiencies, and he indicated the treatment for the lighter forms; the more severe he suggested should be sent to Marseilles into one large general institution, where their continued detention could be adequately supervised. Evidently the question of the amount of mental unsoundness consistent with useful service is a serious one in a country where all the manhood is compelled to serve in the army.

Mental States arising from and connected with Perversions of the Natural Instincts.

The paper on Perverted Instincts by Dr. Dupré will be found especially useful to those who are studying criminology and degeneracy. "Instinctive perversion" is a term frequently used in the language of psychiatry. One meets with it in all clinical observations, medico-legal reports, and in medical certificates of detention, also in describing abnormal children who may be, and usually are, mentally defective, and especially if these possess vicious tendencies, when they are then described as cases of moral insanity or moral imbecility. A definition was necessary and an analytical study of mental states was also necessary. Further, if possible, an enumeration of those who come under the definition, cases such as those of mental degeneracy, of abnormal character and conduct, whether in infancy, youth, or adult age. The history of the condition as described by French alienists was given by Dr. Dupré, and an attempt was made to trace these perversions to the developmental period of life in order to account for those singularities and abnormalities that fall short of definite insanity, or such as may characterise those offenders who commit acts contrary to the advantage of self or against the social welfare, and who appear in police-courts as incorrigibles, rogues, and vagabonds. It was pointed out that many of these cases betray physical and mental stigmata of degeneracy, and a new point was made when it was stated that they show more or less specific signs of *l'hérédo-alcoolisme*, as in this country we are not quite clear what, if anything, this term may signify, but, it was added, they also show signs of hereditary tuberculosis, and if this means a tendency to tuberculosis there is much to be said for the statement; and it was further stated that many of them show signs of hereditary syphilis. Certainly there are signs of hereditary syphilis to be seen in many of these cases, as is evidenced in the photographs of the "black listers" circulated by our own police and seen in the teeth, lips, nose, eyes, and the shape of the head. The suggested classification (which is not original but was advanced by Herbert Spencer years ago and adopted by Mercier) certainly helped to reduce order out of chaos. There had long existed a need for classifying obsessions, impulses, emotional storms and explosions, weakmindedness, fixed ideas, moral obliquities, degenerative vices, and instability; and the division of perverted instincts according to the nature of the instinct, whether directly self-preservative and relating to the life of the individual, or indirectly self-preservative as in the reproductive instinct, or in relation to man's social environment or the power he has to adapt himself to life in a community, was the basis of Dr. Dupré's paper. Deviations from the directly self-preservative instincts were first considered, the search for food, for instance, and in this regard voraciousness, gluttony, and its opposite, the refusal of food and the fear of food, were all mentioned; next the satisfaction of thirst as a natural instinct, with deviations therefrom, such as occurred in drunkenness and dipsomania, were instanced; strange cravings of the appetite were referred to also, the habit of accumulating, of saving and of spending, the instinct of greed, cupidity, thefts, and swindling were all explained as perversions when extreme; he particularly instanced the reversal of the instinct of self-preservation—viz., suicide. The feelings connected with the personality, such as inordinate vanity and shyness, and those connected with reproduction were also fully described with their varieties observed in weak-minded and unstable persons. It was pointed out that the study of criminology was full of such abnormal instances. The reversal of the natural instinct of motherhood was noted in post-puerperal cases, and the feeling which led fathers and mothers to desert their families was also explained on this basis. Perversions of social relationship were noted in those who refused to take their share of the social burden and in those who worked against altruism and disinterestedness, those who refused to pay rates and taxes—"conscientious objectors"—agitators, revolutionists, and anarchists all being classed in this category of perverted instincts. These were antagonistic to benevolence, to compassion, to mutual aid, to devotion, and to public work. These three groups of perverted instincts—viz., (1) personal and self-conservative, (2) sexual and genetic, and (3) altruistic or collective and associative—included most of the perverts, moral imbeciles, and a large group of clinical cases met with on the borderland as well as among the actually insane, also the inebriates and the delinquents, as many of these bore the stigmata of degeneration. Wastrels, "ne'er-do-wells," unemployed and unemployables, vagabonds, vagrants, incapables, and undisciplined vicious persons were all included among perverts, and for these Dr. Dupré entertained but little hope of amelioration by special treatment, and would have them all interned in establishments intermediate between the asylum and the prison, both for their own and for the public safety. In his opinion it was an illusion to expect permanent improvement in these cases, and he was no optimist as to their successful permanent cure. He considered such a view to be a delusion of philanthropists, optimists, and of the religious teacher as well as of the metaphysical theorist.

Views on Results of Education of Perverts.

The discussion upon this paper showed some diversity of opinion.

M. Anglade considered there were great interests raised by this paper, especially to the magistrate in his ministerial capacity, as he frequently had to consider responsibility in regard to weak-minded young persons who suffered from congenital "insufficiency" as well as in regard to those who suffered from "perversions." He himself would wish to have heard more as to the responsibility in senile involution as it was by no means easy to fix and delimit the amount of perversion which should be considered sufficient to justify the plea of irresponsibility in these cases. He disbelieved in the education of young perverts as carried out in our penitentiaries, but he was by no means such a pessimist as Dr. Dupré, still having faith in good surroundings and the force of good example. Of all measures, he believed work in the open air on the land to be among the most effective agencies in the treatment of these perverts. Professor Régis, of Bordeaux, also believed in the possible amelioration of perverts, more particularly those who were sufficiently developed mentally to respond to educational efforts. He quoted the successful results of the St. Louis colony near Bordeaux in the Gironde, which receives and educates children of this class. He urged the necessity for establishing reformatories similar to those in America and about to be established in England, but he felt there should be an alienist attached to these houses as well as an educational master. M. Vigouroux was also very encouraging about the training of the moral imbecile, who always suffers from certain intellectual irregularities as well. He spoke of the dangers to the weak-minded connected with the period of puberty, but urged that with good discipline and good example it was possible so to ameliorate the pervert that he could return to normal life and lead a useful citizenship. He quoted the good results obtained among intelligent cases of moral perverts and imbeciles sent between the ages of 16 and 18 to the school of Théophile Roussel of Montesson. M. Claparet felt keenly that happy results were obtained by gentleness and patience when special educational efforts were made, and he ventured to think if such results were not obtained it was because there were not persons capable of supplying the suitable training. M. Pactet spoke of the value of ordinary education for perverts of all kinds, particularly if above a certain age. Society he felt must defend itself against this class. In

institutions, especially in asylums, they organise rebellion and create disorder, from the result of which they themselves manage to escape. He felt the only treatment was for the magistrate to order these cases into establishments of a nature between the asylum and the prison, and such houses should be especially created. Dr. Ley was hopeful of the results of education, and recorded the work in English reformatory training, which is really not for the mentally defective or the pervert, such conditions being a disqualification, but this was not apparently known to the speaker. Dr. Voison quoted his experience at the Salpêtrière, where there existed a training establishment or a reformatory for girls of every grade of psychic abnormality. In ten years, out of 200 girls, only five had to be sent to asylums for the insane, the others, after elementary educational instruction and constant industrial occupation suitable to their needs, having gone out into ordinary life, and subsequent reports of them had been satisfactory. Dr. Ballet confessed he was in entire agreement with the reader of the paper, and described himself as a pessimist in regard to the moral amelioration of the pervert. He knew that many of these persons offended against society in an incomplete, half-hearted kind of way, and they could best be described as half mad. The question was, Ought they to be punished? They certainly ought to be put in places where they would be unable to injure society. For the idea of inflicting punishment should be substituted the proper one in the first instance of defending society, and before these persons could be punished it should be ascertained first if they were responsible. Criminals, he believed, whether occasional or habitual, were all by instinct "perverts," and their correct treatment would be to organise a regular method of medico-psychological examination before inflicting punishment upon them. It is not certain whether our ideas ought not to be changed, certainly widened, upon the subject of punishment. M. Vallon advocated the more complete study of criminality, and urged that medical men should be placed at the head of institutions into which these cases were to be received. M. Pactet reminded the meeting that he had proposed at the Lisbon Congress a medico-psychological service in the institutions where these perverts were detained, but his proposal, although adopted by the Congress, had met with the strongest resistance from Government sources.

Mental and Nervous Complications of Malaria (Paludism).

Major Chavigny, of the French Army Medical Service, presented a paper on this subject. He reviewed cases reported in the medical literature of malaria which had given these symptoms, and he was surprised at their great number, but upon closer investigation he had been led to conclude that these symptoms were often accidental and not dependent upon malaria. As to the true nervous symptoms dependent upon malaria, he classified them into peripheral and central. The latter included aphasia, transitory hemiplegia, and local paresis, all of which passed off when quinine was administered. He himself had noticed peripheral neuralgias—most often of the trigeminal nerve, the sciatic, the occipital, and the intercostal, and such cases of neuritis and polyneuritis had been described by other authors, notably by Catrin, Metin and Jourdan, Dopter and Sacquépée, and the symptoms had been confused with alcoholic peripheral neuritis. Remlinger had described myelitis consequent upon malaria, and others had observed transitory medullary paralysis and myelopathies where malaria could be the only etiological factor. As to the mental complications, it was most difficult to assert definitely their true causation, for malaria, alcohol, and constitutional predisposition to insanity were often combined, and there was a tendency on the part ot some authorities to blame alcohol for all the psychoses which supervene in cases of malaria when this was taken in any degree or form. Epilepsy was a form of nerve disorder often associated with malaria in the French colonies, and acute hallucinatory mental confusion was also frequently met with, worse at night, and associated with terrifying dreams. In subacute cases of malaria delirium was often seen at the onset of other symptoms of malaria. In some chronic cases of malaria one might meet mental symptoms, but they often appeared to be unconnected with the malaria, although in others they passed off under the quinine treatment. The highest opinion to-day did not recognise a true form of malarial psychosis, yet malaria might be the exciting cause acting on a predisposed subject, and it might also be that the predisposition to break down acted upon a subject lowered in vitality and thus prepared for the psychosis by malaria; both these theories had their advocates.

In the discussion Dr. Dumolard, of Algiers, related the nervous complications which had occurred in ten cases out of a total of 200 observations. Five cases were those of cerebral coma, of which two had died, one was a case of hæmorrhagic meningitis followed by death, another of hemiplegia (with the parasites in the brain), one of cerebro-spinal meningitis with lymphocytosis, two others had meningeal symptoms, one of the Landry's paralysis type cured by quinine. M. Grall called attention to the bibliography of the subject in which these nervous symptoms were referred to as far back as 1840 by Dr. Sigund, of French Guiana and Antigua. Professor Régis agreed that alcohol had no monopoly as the sole cause of acute and terrifying hallucinations; all intoxicants and all infections produced them, and malaria in its turn could also produce them, but he had often noticed that cases of malarial delirium have alcohol as a predisposing factor. It is not the drinking that is to blame, but more often the nervous predisposition to breakdown and the failure of their eliminating organs. The result of malaria in his experience was an extreme physical and mental weakening. He had seen serious dyspnœic symptoms as well as disturbances of consciousness, such as failure of memory, in these cases. The failure and decay in these cases could only be explained by the presence of malaria. Dr. Vigouroux, of Vaucluse, showed some histological preparations and related the clinical history of several cases. In one patient after 20 years of good health he was seized with intermittent fits of mental confusion lasting several days, but followed by complete recovery lasting two to three weeks. He died comatose in another fit, and at the post-mortem examination the liver was found to be cirrhotic and the spleen malarious. In 14 out of 60 cases of general paralysis under his care there was an association of malaria and alcohol, as verified in the post-mortem examination. Dr. Simonin referred to memory troubles in two cases which were due to malaria, but were attributed to alcohol; in another polyneuritis was attributed to alcohol, whereas the true cause was malaria. Dr. Anglade added his testimony that alcoholism might be attributed as the cause of mental symptoms, whereas the real etiology was paludism.

Professor Régis communicated an interesting paper by a naval surgeon, Dr. Hesnard, on the Diagnostic Difference between Malarial and Alcoholic Delirium.

Asylum of St. Peter at Marseilles.

On my way to Tunis I visited the asylum into which some of those European Tunisians who became insane were received—viz., the Asylum of St. Peter at Marseilles, the only public asylum of this the second city of France. The front, facing a main road, is the administrative block, and there is here a plot of well laid out garden with trees and flower beds, which were the only flowers I saw there. I was courteously received by the deputy superintendent, Dr. Cornu, who went round several of the male wards with me, and who seemed much appreciated by his patients. I was not taken over any female wards. It was the dinner hour for patients and staff, both dining in the wards and at the same time, the only difference being that the staff had a separate table; wine—a quarter of a litre—was provided for both. It is a very old asylum, built in 1844, but added to in more modern times. It is stated to have grounds covering 90 acres, and it provides accommodation for the poor in one part and for paying patients in separate blocks. There is an agricultural colony for 60 patients and one for 20 epileptic patients who are not insane. The patients exercised in cramped, small courts, interspersed as it were between the different blocks, many of which are connected by covered ways. The day rooms were very bare; I saw no newspaper or book, no birds, flowers, pictures, or means of amusement and distraction on the walls or elsewhere, and I saw no piano except in the private patients' block. I saw some dormitories with flagged floors which had rows of wooden box-beds with beds of straw; and the windows were unglazed but provided with shutters which were kept locked with chain and padlock from the inside. The asylum accommodates about

1200 patients, many of them being repatriated from the colonies. I understood there were four doctors and a lay director at the head. The place was said to be visited by the Procureur de la République, the Prefect of Police, and the Commission of "Surveillance." Patients were admitted on the order of the Prefect of Police accompanied by a medical certificate, and such detention will last for two weeks; if the detention is to be prolonged beyond two weeks, then two certificates are necessary. The acute block seemed to provide an ample number of single rooms, which were lofty, roomy, and airy. I saw several varieties of low-typed idiots and others who were separated from the rest of the patients, but no effort seemed to be made to train them. The whole place was very prison-like except the private patients' quarters, and no scientific work of any kind seemed to be carried out. I saw an Englishman in detention there and felt for his expatriation in his illness, but he had been living in Marseilles several years and seemed unlikely to leave this place of his entombment.

Excursions: Visit to Carthage.

The excursions of the Congress included some to Sfax and Gabès, also some into the desert and to Kairouan, others into Algiers through Constantin, visiting Biskra, the "Queen of the Desert," but I had no time for any of these. I made a visit, however, to the Arab quarter of Tunis, and greatly admired the dignified, if not aristocratic, calm of the native Arab. The central bazaars of the native quarter, the Mussulman customs, their devotion, their relation to their Jewish neighbours, and their apparently complete disregard of sanitation (as we know it), which must exact an enormous penalty in regard to infantile mortality, were all a new view of life. The different kinds of dark races in the town were an interesting ethnological study; the separation and isolation of their women, their customs and appearance, were a refreshingly new experience.

An excursion to Carthage, formerly the rival of Rome and mistress of Spain, Sicily, and Sardinia, now only a denuded hill, was nevertheless full of archæological interest. At the time of the first Punic war Carthage was a city of 23 miles in circumference, with a population of 700,000. The remains of this mighty city are to be found to day in every museum in Europe, and much of the city of Tunis itself has been built from its ruins. Its site even now is singularly beautiful, on the sloping shores of a magnificent and well-watered bay, sheltered from the north and west. Before the Roman wars the city of Carthage was pagan and given to the sacrifice of human victims, and this was evident in the extensive and valuable museum, the Musée Lavigerie, which Père de la Lettre, one of the White Fathers, showed to us. There were literally hundreds of small sarcophagi into which human sacrifices had been placed, and there were many symbols of votive tablets with the disc of Bäal—the upright hand, the crescent of Astarte, palm trees, rams, and human sacrifices offered to Bäal to be seen in this valuable museum.

Following the Roman occupation and after the third Punic War Carthage saw the uprooting of paganism, and it became the first Christian seat of religious teaching in North Africa, and Christian inscriptions such as "In peace," "Faithful in peace," "Innocent in peace," are seen among the collections in this museum founded by Cardinal Lavigerie. In what was said to be the Citadel is now the Byrsa, where the Tunisian merchants spend their summer in tidy villas and larger mansions. At the end of the spur on this site is said to have been the Temple of Æsculapius, where the patriotic wife of Asdrubal went to her death by fire, also the Palace of Dido, where from her funeral pyre she saw Æneas sail! Close to this site is the great memorial cathedral of St. Louis, built by Charles X. in 1830, and where Cardinal Lavigerie lies buried.

Excursions were also made to other places of interest in the neighbourhood, and Tunisian hospitality was most cordial. One, a visit to the "Red Cross," a dispensary where we were received by the ladies' committee of the "Red Cross" Society, was most interesting. The excursion to the Museum of Bardo, when we were especially under the guidance of M. Merlin, was most informing and as educative as it was pleasant. This museum contains the most noted and largest mosaic pavement in the world, and its collection of statuary, lamps, urns, inscriptions, pottery, bronzes, and mosaic pictures, is truly wonderful, and it contains the best single collection of Carthaginian remains. One of our excursions to the Sadiki Hospital for Arabs was under the guidance of Dr. Porot, who gave the history of the Arab palace before its use as a hospital, its present use having been effected through his skill and interest. The garden with its bougainvillea, quince trees, oleanders, daturas, and meandering streamlet, also with its oriental trees and flowers, was beautifully refreshing.

Leaving Tunis and travelling northward under the Spanish aqueduct behind the Bardo—the former palace of the Bey of Tunis—through olive groves, I passed along the road to Bizerta, where, among the harbingers of spring, a pair of swallows waited in an open restaurant for the fair wind to cross the Mediterranean. The road from Tunis lay across broad expanses of alluvial plains, covered here and there with small petunias and speedwell, also with scarlet poppies (*coquelicots*) and yellow doronicons—the colours of the Royal Spanish house and the only cheerful reminder of the past dominion of Spain. The small cultivated plots, marked out by opuntia hedges and sheltered by aleppo pines (pinus halepensis), acacias, and shaggy eucalyptus trees, showed the care and thrift of some of the scattered inhabitants. It was on this journey that I came across the Bedouin Arabs with their camels and tents, but the journey permitted no closer acquaintance than a passing glimpse of them.

St. Anne Asylum, Paris.

Before the end of the journey I took the opportunity of visiting the St. Anne Asylum in Paris, the acute receiving house of the city, through which pass about 4000 cases a year, the patients being afterwards distributed to the various large asylums around Paris. I was unfortunately unable to see the venerable and highly respected Dr. Magnan, whose acquaintance I made over 30 years ago, when he contributed to the *Journal of Mental Science* a short account of a visit to asylums in Paris. Dr. Magnan is in his eightieth year, but active, energetic, and devoted as ever he has been to the cause of the poor insane. In 1908 he celebrated his jubilee of service at St. Anne, but as my visit was made the Saturday before Easter Day, and he was as usual spending the week-end out of town, we did not meet. Readers of THE LANCET probably all know the fortress-like institution of St. Anne, built in 1867, and many have attended its clinics. It is quite within the city of Paris, has high stone walls round it, and its blocks are high stone buildings, from one to four storeys, and with tiled red roofs. There is a central administrative department in which Dr. Magnan lives, faced by a block of four storeys, where other medical officers live, and a lay governor's house in its separate garden. I was particularly interested in seeing the line of treatment, and made a visit to the most recent cases with one of the medical officers. I arrived about eight in the morning, and was at least an hour too early even for the French doctor's medical round! The large number of cases of primary dementia of all ages struck me greatly, but there were not many cases of general paralysis. The treatment adopted was mainly the bed treatment, no morphia and no sulphonal were used, only bromide and chloral as hypnotics. I saw no restraint, but an acute patient had five or six others holding her down on a mattress on the floor in one of the acute wards at my visit. The bedrooms or dormitories were all of polished wood floor, and there were very few patients out of bed in the infirmaries or wards for recent cases. There was an excellent medical reference library, but I was not shown the laboratories. All police cases are brought into St. Anne Asylum first, and when the diagnosis is fully ascertained they are sent to various separate institutions. The plain appearance of the wards and the institution-like character of the place were in marked contrast to our more homely surroundings in England, as is the case in all asylums where the administrative director is not a doctor. The chief officials of the asylum are appointed by the Minister of the Interior and the lay officials and attendants by the Prefecture of Police.

I am indebted to *La Presse Médicale* (through M. Jean Abadie) and to *La Tunisienne* for reports of the Congress and for the names quoted in this paper. Dr. G. de Couvalette's great archæological knowledge and scholarship were most helpful to all of us in the excursions to Carthage and to the Musée Alouai (Bardo). During my stay in Tunis and on the journey thither from Marseilles, as well as in the

arrangements for travelling, I have to acknowledge the extreme kindness of Dr. Porot, the able secretary of the Congress, as also the courtesy and much-appreciated friendliness of Dr. Régis and Dr. Semeleigne, to all of whom I am deeply grateful.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN the 95 largest English towns, with an aggregate population estimated at 17,639,881 persons at the middle of this year, 8403 births and 3723 deaths were registered during the week ended Sept. 14th. The annual rate of mortality in these towns, which had been 11·4, 11·2, and 11·5 per 1000 in the preceding three weeks, declined to 11·0 per 1000 in the week under notice. During the first 11 weeks of the current quarter the mean annual death-rate in these 95 towns averaged 11·3, against 11·4 per 1000 in London during the same period. The annual death-rates in the several towns last week ranged from 3·1 in Ilford, 4·9 in Eastbourne, 5·2 in Acton, 5·3 in East Ham, and 5·4 in Edmonton, to 15·7 in Blackpool, 16·0 in Birkenhead, 16·1 in Barrow-in Furness, 16·8 in Gateshead, and 19·5 in South Shields.

The 3723 deaths from all causes were 172 fewer than the number in the previous week, and included 327 which were referred to the principal epidemic diseases, against 403 and 399 in the two previous weeks. Of these 327 deaths, 143 resulted from infantile diarrhœal diseases, 74 from measles, 42 from whooping-cough, 38 from diphtheria, 18 from scarlet fever, and 12 from enteric fever, but not one from small-pox. The mean annual death-rate from these epidemic diseases last week was equal to 1·0 per 1000, against 1·2 in each of the preceding three weeks. The deaths of infants under 2 years of age attributed to diarrhœa and enteritis, which had been 183, 203, and 183 in the preceding three weeks, further declined to 143 last week, and included 52 in London and its suburban districts, 14 in Liverpool, 7 in Manchester, 7 in Hull, 6 in Portsmouth, and 5 in Sheffield. The deaths referred to measles, which had steadily fallen from 156 to 83 in the preceding eight weeks, further fell to 74 last week, and caused the highest annual death-rates of 1·8 in Gateshead and in Newport (Mon.), and 2·4 in Middlesbrough. The fatal cases of whooping-cough, which had been 44, 61, and 52 in the preceding three weeks, declined to 42 last week, which was the lowest number of deaths from this cause recorded in any week of the current year; 14 deaths were registered in London, and 2 each in Birmingham, Grimsby, Nottingham, Sheffield, South Shields, and Gateshead. The deaths attributed to diphtheria, which had been 26, 23, and 36 in the three preceding weeks, rose to 38 last week, and included 10 in London and 2 each in Portsmouth, Stoke-on-Trent, Birmingham, Liverpool, and Preston. The deaths referred to scarlet fever, which had been 23, 18, and 25 in the preceding three weeks, fell to 18 last week; 3 deaths were recorded in Birmingham, and 2 each in London, West Ham, and Liverpool. The fatal cases of enteric fever, which had been 12, 8, and 20 in the preceding three weeks, fell to 12 last week, and included 3 in London and 2 in Hull.

The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had been 1512, 1525, and 1564 at the end of the preceding three weeks, had further risen to 1662 on Saturday last; 281 new cases of this disease were admitted to these institutions during the week, against 167, 213, and 228 in the preceding three weeks. These ospitals also contained on Saturday last 920 cases of diphtheria, 463 of measles, 306 of whooping-cough, 46 of enteric fever, and 1 of small-pox. The 984 deaths from all causes in London were 32 below the number recorded in the previous week, and no fewer than 339 below that recorded in the corresponding week of last year; these 934 deaths were equal to an annual death-rate of 11·4 per 1000. The deaths referred to diseases of the respiratory system, which had been 125, 91, and 105 in the preceding three weeks, were 103 last week, and were 6 in excess of the number in the corresponding week of last year.

Of the 3723 deaths from all causes in the 95 towns last week, 158 resulted from different forms of violence, and 341 were the subject of coroners' inquests. The causes of 32, or 0·9 per cent., of the deaths registered were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in Leeds, Bristol, West Ham, Newcastle-on-Tyne, Nottingham, Stoke-on-Trent, Salford, and in 67 other smaller towns. The 32 uncertified causes of death last week included 4 in Liverpool, 4 in South Shields, 3 in Birmingham, and 2 in Preston, in Sheffield, and in Gateshead.

HEALTH OF SCOTCH TOWNS.

In the 18 largest Scotch towns, with an aggregate population estimated at 2,182,400 persons in the middle of this year, 1133 births and 518 deaths were registered during the week ended Sept. 14th. The annual rate of mortality in these towns, which had been 13·1 and 12·7 per 1000 in the two previous weeks, further declined to 12·4 per 1000 in the week under notice. During the first eleven weeks of the current quarter the mean annual rate of mortality in these Scotch towns averaged 13·2 per 1000, against 11·3 per 1000 in the 95 large English towns during the same period. Among the several Scotch towns the annual death-rates last week ranged from 6·1 in Falkirk, 7·5 in Motherwell, and 7·7 in Clydebank, to 15·1 in Greenock, 15·5 in Kirkcaldy, and 24·6 in Perth.

The 518 deaths from all causes were 12 fewer than the number in the previous week, and included 41 which were referred to the principal epidemic diseases, against 59 and 51 in the preceding two weeks. Of these 41 deaths, 19 resulted from infantile diarrhœal diseases, 9 from whooping-cough, 8 from diphtheria, 2 from measles, 2 from enteric fever, and 1 from scarlet fever, but not one from small-pox. The 41 deaths from the principal epidemic diseases were equal to an annual death-rate of 1·0 per 1000, which coincided with the rate from these diseases in the 95 large English towns. The deaths of infants under 2 years of age attributed to diarrhœa and enteritis, which had been 19, 29, and 30 in the preceding three weeks, declined to 19 last week, and included 9 in Glasgow, 3 in Aberdeen, and 3 in Partick. The deaths referred to whooping-cough, which had fallen from 22 to 9 in the preceding four weeks, were again 9 last week; 2 deaths occurred in Glasgow, 2 in Dundee, and 2 in Perth. The fatal cases of diphtheria, which had been 5, 7, and 9 in the preceding three weeks, were 8 last week, of which number 5 were registered in Glasgow. The 2 deaths attributed to measles occurred in Partick and Coatbridge respectively; the 2 deaths referred to enteric fever in Greenock and Ayr respectively; and the fatal case of scarlet fever in Kirkcaldy.

The deaths referred to diseases of the respiratory system in the 18 Scotch towns, which had been 55, 68, and 59 in the preceding three weeks, were 61 last week; 17 deaths were attributed to different forms of violence, against 19 and 24 in the two previous weeks.

HEALTH OF IRISH TOWNS.

In the 22 town districts of Ireland, having an aggregate population estimated at 1,154,150 persons at the middle of this year, 579 births and 315 deaths were registered during the week ended Sept. 14th. The annual rate of mortality in these towns, which had been 14·9 and 13·0 per 1000 in the two previous weeks, rose to 14·2 per 1000 in the week under notice. During the first 11 weeks of the current quarter the mean annual death-rate in these Irish towns averaged 14·5 per 1000; in the 95 large English towns the corresponding death-rate did not exceed 11·3 per 1000, while in the 18 Scotch towns it was equal to 13·2 per 1000. The annual death-rate in the several Irish towns last week was equal to 14·7 in Dublin (against 11·4 in London), 12·6 in Belfast, 15·0 in Cork, 17·9 in Londonderry, 10·8 in Limerick, and 20·9 in Waterford, while in the remaining 16 towns the mean rate was equal to 15·3 per 1000.

The 315 deaths from all causes in the 22 Irish towns were 27 in excess of the number in the previous week, and included 24 which were referred to the principal epidemic diseases, against numbers declining from 43 to 32 in the preceding three weeks; of these 24 deaths, 11 resulted from diarrhœal diseases, 6 from whooping-cough, 2 from enteric fever, 2 from scarlet fever, 2 from diphtheria, and 1 from measles, but not one from small-pox. These 24

deaths from the principal epidemic diseases were equal to an annual rate of 1·1 per 1000, against 1·0 in the 95 large English towns and in the 18 Scotch towns. The deaths attributed to diarrhœal diseases, which had been 21, 16, and 17 in the preceding three weeks, declined to 11 last week, and included 9 of infants under 2 years of age; 4 deaths were registered in Dublin, 4 in Belfast, and 2 in Tralee. The deaths referred to whooping-cough, which had been 8, 7, and 7 in the preceding three weeks, were 6 last week, of which number 3 occurred in Ballymena. The 2 fatal cases of enteric fever were registered in Sligo and Tralee respectively; those of scarlet fever in Dublin and Belfast, also those of diphtheria; and that of measles in Dublin.

The deaths referred to diseases of the respiratory organs in the 22 towns, which had been 46, 49, and 47 in the preceding three weeks, fell to 41 in the week under notice. Of the 315 deaths from all causes, 118, or 37 per cent., occurred in public institutions, and 3 resulted from different forms of violence. The causes of 12, or 3·8 per cent., of the total deaths registered were not certified either by a registered medical practitioner or by a coroner after inquest; in the 95 large English towns the proportion of uncertified causes of death last week did not exceed 0·9 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments have been notified:—Fleet-Surgeons: W. G. Axford, H. Holyoake, H. W. Gordon-Green, C. L. W. Bunton, H. S. Burniston, and A. W. B. Livesay, all to the *President*, additional, for three months' (Senior Medical Officers') course; H. W. Macnamara to the *Lion;* J. H. Pead to the *Vivid*, for Royal Naval Barracks; G. Ley to the *Duncan;* H. Clift to the *Ariadne;* J. C. Ferguson to the *Hindustan;* and R. T. Gilmour to the *Glasgow*, on recommissioning. Staff-Surgeons: G. Gibson, J. D. S. Milln, J. Martin, and C. B. Fairbank to the *President*, additional, for three months' (Senior Medical Officers') course; A. C. Bean to the *Britannia;* L. S. Whitwarm to the *Bellona;* H. J. Chater to the *Pembroke*, additional, for Chatham Hospital, temporary; F. Bolster to the *Suffolk;* F. F. Lobb to the *Boadicea;* and G. E. Duncan to the *Pyramus*. Surgeons: H. H. Babington to the *Indus;* J. Glaister to the *Vivid*, additional, for disposal.

ARMY MEDICAL SERVICE.

Lieutenant-Colonel Robert J. S. Simpson, C.M.G., from the Royal Army Medical Corps, to be Colonel, vice A. F. Tyrrell, retired (dated Sept. 11th, 1912).

ROYAL ARMY MEDICAL CORPS.

Major George S. McLoughlin, D.S.O., to be Lieutenant-Colonel, vice R. J. S. Simpson, C.M.G. (dated Sept. 11th, 1912).

Lieutenant-Colonel Anthony Dodd retires on retired pay (dated Sept. 18th, 1912). Major Wilfred W. O. Beveridge, D.S.O., to be Lieutenant-Colonel (dated Sept. 18th, 1912). Lieutenant John T. Simson is seconded for service with the Egyptian Army (dated August 23rd, 1912).

Colonel H. O. Trevor has been selected for appointment as Assistant Director of Medical Services in the Cork District in succession to Colonel J. R. Dodd. Lieutenant-Colonel J. M. F. Shine has been directed to join the Irish Command, and on arrival will be posted to Belfast as Officer commanding the Military Hospital and Senior Medical Officer of the North of Ireland Coast Defences, in succession to Lieutenant-Colonel B. J. Inniss. Lieutenant-Colonel G. Cree has been selected for appointment as Assistant Director of Medical Services at Bordon, Aldershot Command, in succession to Colonel J. R. Tyrrell. Lieutenant-Colonel R. J. Windle has been placed under orders for service in India. Lieutenant-Colonel C. H. Hale, D.S.O., has been transferred from the Military Hospital at Kamptee to Maymyo Cantonment, Burma. Lieutenant-Colonel A. E. Tate has taken up duty at Cherat as Officiating Assistant Director of Medical Services to the First (Peshawar) Division, vacated by Colonel S. C. B. Robinson on retirement. Lieutenant-Colonel M. O'Halloran has been appointed to Edinburgh, in succession to Colonel S. Westcott, C.M.G., transferred to Portsmouth District as Assistant Director of Medical Services.

Major R. J. W. Mawhinny has been placed under orders for a tour of service in India. Major G. St. C. Thom has been transferred from Rawal Pindi Cantonment to Murree. Major J. W. Dunn has been appointed Specialist in Radiography and Electrical Science to the Fifth (Mhow) Division. Major F. S. Walker has been transferred from Queenstown to Cork. Major St. J. B. Killery has taken up duty at York on transfer from Leeds. Major M. P. Corkery, from Mount Abu, has joined at Nasirabad. Major M. H. G. Fell, on return from a tour of service at Cairo, has been appointed Deputy Assistant Director-General, Army Medical Services, at the War Office, in succession to Major E. T. Birrell, whose tenure of the appointment has expired. Major J. Cowan has been appointed to the Station Hospital at Lahore. Major S. O. Hall has been placed under orders for a tour of service in India. An exchange on the roster for service abroad has been sanctioned between Major F. W. Hardy, specialist sanitary officer to the Colchester district, and Major E. Brodribb; the former officer will now proceed to India. Major E. P. Hewitt has been transferred from the Military Hospital at Poonamallee to Nowgong cantonment. Major H. W. O'Reilly has taken up duty in charge of the Eleventh Brigade Reception Hospital at Army Manœuvres.

Captain A. N. Fraser has been appointed for duty in the London district. Captain C. G. Sherlock has been transferred from the Military Hospital at Lahore to Dalhousie Cantonment. Captain R. G. Meredith has taken over medical charge of Castle Ring Camp. Captain H. C. Sidgwick has been transferred from Kingston-on-Thames to the Royal Herbert Hospital at Woolwich. Captain C. R. Millar has embarked for a tour of service at Sierra Leone, West Africa. Captain H. C. Hildreth has been selected for appointment as Specialist in Midwifery and Diseases of Women and Children to the Military Families Hospital, Fermoy, in succession to Major S. O. Hall, under orders for service abroad. Captain J. Fairbairn has been appointed for duty in the Eastern Command. Captain H. St. M. Carter has been selected for appointment as Specialist in Operative Surgery to the Royal Victoria Hospital, Netley.

Lieutenant A. P. O'Connor has embarked for a tour of service in Egypt. Lieutenant R. F. Bridges has been transferred from the Military Hospital at Shorncliffe to Dover. Lieutenant E. C. Deane has been transferred from the Military Hospital at Chester to take Medical Charge at Ross Camp. Lieutenant H. J. G. Wells has taken up duty at Kinsale. Lieutenant W. S. R. Steven has joined the Royal Herbert Hospital at Woolwich on transfer from Hounslow. Lieutenant C. H. Stringer has been transferred from the Royal Victoria Hospital, Netley, to Salisbury Plain, and appointed Medical Officer in Charge at Fargo Camp. Lieutenant J. D. Bowie has taken up duty at Aldershot. Lieutenant C. D. K. Seaver has been transferred from the Military Hospital at Cork to Queenstown.

INDIAN MEDICAL SERVICE.

Surgeon-General A. M. Crofts, C.I.E., Deputy Director of Medical Services, Second (Rawal Pindi) Division of the Northern Army in India, has arrived home on leave of absence.

Lieutenant-Colonel H. Smith, honorary surgeon to the Viceroy and Governor-General of the East Indies, has been appointed a Civil Surgeon of the First Class, vice Lieutenant-Colonel A. W. T. Buist, on leave. Lieutenant-Colonel J. Chaytor-White, lately Sanitary Commissioner to the United Provinces of Agra and Oudh, has been granted six months' extension of leave of absence on medical certificate.

Major T. Jackson has taken up duty as Deputy Sanitary Commissioner of the Gujarat Registration District. The services of Major W. H. Ogilvie have been placed temporarily at the disposal of the Director of Temporary Works, Delhi. Major G. E. Stewart has been appointed to act as Deputy Sanitary Commissioner of the Bombay Central Registration District, in addition to his own duties as Superintendent of Mahabaleshvar. Major E. S. Peck, civil surgeon at Jullundur, has been transferred to Lahore as Civil Surgeon and Professor of Forensic Medicine at the Medical College during the absence on leave of Lieutenant-Colonel W. Ronaldson Clark.

Captain D. H. Rai has been selected for appointment as Specialist in the Prevention of Disease, and appointed to hold charge of the Bacteriological Research Laboratory in the Secunderabad Brigade. Captain B. Higham has relinquished

charge of the office of Deputy Sanitary Commissioner of the Bombay Central Registration District. Captain M. F. Reaney has taken up duty as Civil Surgeon at Akola. Captain J. Morison has been appointed on Special Duty in connexion with the investigation into the causes of diarrhœa at Poona during the rains. Captain H. G. S. Webb has taken up duty as officiating Deputy Sanitary Commissioner in the Punjab, in relief of Major W. C. H. Forster. Captain W. E. Brierly, at present in medical charge of the 17th Cavalry at Bareilly, has been appointed to hold Civil Medical Charge of the Bareilly District in addition to his military duties during the absence on leave of Lieutenant-Colonel W H. E. Woodwright. Captain E. Bisset, plague medical officer at Meerut, has been selected to officiate as Deputy Sanitary Commissioner, First Circle, United Provinces of Agra and Oudh, in succession to Major S. A. Harris.

TERRITORIAL FORCE.

Royal Army Medical Corps.

6th London Field Ambulance, Royal Army Medical Corps: Lieutenant William Bain to be Captain (dated July 30th, 1912).

2nd Wessex Field Ambulance, Royal Army Medical Corps: Captain Edward R. Clarke resigns his commission (dated Sept. 14th, 1912).

Welsh Border Mounted Brigade Field Ambulance, Royal Army Medical Corps: Robert Francis Gerrard to be Lieutenant (dated April 12th, 1912).

5th London Field Ambulance, Royal Army Medical Corps: Ernest George Annis to be Lieutenant (dated July 30th, 1912).

4th Northern General Hospital, Royal Army Medical Corps: Captain Frederick S. Genney to be Major (dated August 1st, 1912).

Attached to Units other than Medical Units.—Joseph Boyle McKay to be Lieutenant (dated July 1st, 1912). Lieutenant Edward L. D. Dewdney to be Captain (dated Sept. 17th, 1912).

For Attachment to Units other than Medical Units.—Surgeon-Major John Lynn Thomas, C.B., from the Glamorgan Royal Garrison Artillery, to be Major (dated Sept. 18th, 1912).

Correspondence.

"Audi alteram partem."

THE NATURE AND ORIGIN OF LIFE.

To the Editor of THE LANCET.

SIR,—In his address to the British Association Professor Schäfer lays before us the mechanistic conception of life. It is somewhat disappointing to find that he has not brought forward any new arguments in favour of his point of view, and that he does not consider the arguments on the other side. It is impossible within the limits of a letter to criticise this address fully, but I should like to draw attention to one or two points.

One has often heard of the argument that crystals grow, and that therefore the power of growth is not limited to living things, but it is rather surprising to find Professor Schäfer supporting this view. In reality there is no analogy between the enlargement of a crystal and the growth of a living organism. A crystal increases in size by the deposition on its surface of new molecules from the surrounding medium. The surface is therefore continually changing, and the actual surface at any one time becomes buried by the subsequent deposition of fresh molecules. In living things, however, growth is interstitial, the surface continually expanding, and not only is there no increase by apposition from the environment, but in many cases at least the superficial portions are shed into the surrounding medium.

Again, a crystal can only increase in size provided that the surrounding medium contains molecules (or ions) identical with those of which the crystal is composed. A crystal of sodium chloride cannot increase in a solution of sodium chlorate, in spite of the fact that the necessary elements are present, since it has not the power of converting the chlorate ion into a chloride ion. In living things it is quite otherwise. A living thing grows in a medium which does not contain molecules (or ions) identical with those of which it is built up. Again, all living things multiply by some form of fission, a property which is not displayed by a crystal or any other non-living thing. What is true of a living organism as a whole is equally true of its constituent parts down to the smallest particles visible with the microscope. All these constituent parts show interstitial growth and multiplication by fission, and in all the composition is different to that of the surrounding medium.

On the one hand, therefore, we have the phenomena of interstitial growth and multiplication by fission in all living things, whether independent organisms or the constituent parts of such organisms; and also we have the fact that such growth and multiplication take place in a medium which does not contain the necessary specific molecules. On the other hand, we have no example of these phenomena occurring in non-living things. One is justified, therefore, in concluding that there is an essential difference between the living and the non-living. Further, seeing that all living things within the range of vision enlarge by interstitial growth and show reproduction by fission, one is justified in concluding that the ultimate ultra-microscopic living units (biophores) also possess these properties. Hence a biophore cannot be a chemical molecule, but must be a morphological unit composed of aggregates of molecules which have a definite arrangement in the unit. In other words, there is no such entity as a "living substance," there are only "living things," and life is impossible apart from organisation.

I have confined my remarks to one or two points which arise out of the address, and it seems to me that these points should be seriously considered by those who uphold the mechanistic conception of life. Also, seeing that all the evidence at our disposal shows that life has a morphological and not a chemical basis, it is premature to suggest the possibility of a synthesis of living matter.

I am, Sir, yours faithfully,

Manchester, Sept. 14th, 1912. CHARLES POWELL WHITE.

MANUAL LABOUR AND CARDIAC DISEASE.

To the Editor of THE LANCET.

SIR,—On August 29th, assisted by Dr. F. J. Baildon, of Southport, I made a post-mortem examination on the body of a man. The history given was that the man, aged 65, a lock-keeper on the Leeds and Liverpool Canal, was seen at work about 9 A.M. pumping water out of a boat. He was missed 15 minutes later, and his body was found in the canal, lying with the head under water; the feet and right shoulder were also in the water, between the boat and the canal bank. The boat was moored two feet from the bank, and the water was 18 inches deep. He was said never to have had a day's illness in his life.

The body was well nourished. Rigor mortis was well established. There were no marks of violence; there were pressure marks in the left groin due to a truss. Skin of upper extremities and thighs presented a goose-flesh appearance. Pupils equal. Mouth wide open and clean; contained no teeth. There was a thick layer of fat beneath the skin; a similar layer over the distended pericardium. The lungs were adherent. On opening the pericardium it seemed to be filled with serous fluid. The space behind the heart was filled with blood-clots. Heart and lungs were removed together. The aorta was dilated but not ruptured. When opened a few small calcareous deposits were noticed on the inner surface. All the heart cavities were empty. A rupture of the posterior wall of the left ventricle was found half an inch long about the middle of the wall, nearly an inch from the septum; the edges were jagged; the heart muscle at this point was very fatty and soft. The valves presented no abnormality; the lungs were congested, the liver fatty; all the other organs were healthy. There was no dirt, water, or foreign body in the mouth, trachea, or lungs, &c. No evidence of drowning. Heart rupture is a comparatively rare cause of death, the falling of the man into water and being found to be dead being so suggestive of death by drowning that only a post-mortem examination saved the coroner's jury from registering a wrong verdict. It is

amazing that a man with a heart like this was capable of any work.

Bearing on this last point—viz., employability—I made another post-mortem examination yesterday on the body of a man, aged 35, a labourer in an ironworks; he had never been medically treated. He also was said never to have had a day's illness. He finished his day's work on Sept. 6th at 5.30 P.M., making no complaint during the day. He coughed up some blood and died. I found a cavity in the right lung large enough to hold a hen's egg, consolidation of the apex of the left lung, with a small abscess just below the consolidated portion. His right kidney, 8 inches long by 5½ inches wide and 4 inches thick, was lobulated; the capsule was ¼ inch thick, the surface yellow. On section there was found a collection of abscesses, the ureter being very slightly thickened. The left kidney, enlarged and congested, had one soft cheesy patch in the hilus holding about 1½ drachms of thickened pus, &c.—I am, Sir, yours faithfully,

Hindley, Sept. 10th, 1912. J. CHRONNELL.

HIGH BLOOD PRESSURE IN ARTERIO-SCLEROSIS.

To the Editor of THE LANCET.

SIR,—In a recent article[1] Dr. Herbert French has shown that in arterio-sclerosis the arterioles remain patent, the middle coat of these vessels degenerates, fibrous tissue taking the place of the original muscle; he attributes the increased blood pressure to hypertrophy of the heart, which arises from demand for blood by the different organs in carrying on their work. Several years ago I drew attention in the columns of THE LANCET to the active propelling action of the arteriolar muscle in the circulation of the blood. I then tried to demonstrate that the state of semi-contraction of the muscular arterioles implied a force acting at right angles to a moving column of blood impelled from behind—force which would necessarily result in an auxiliary propelling action. The circulation would thus be carried on apart from secondary factors by two hearts—a central and a peripheral one.

Now if such expresses the real condition of the propelling agency of the circulation, it is obvious that the practical absence of one of these factors entails increased action on the part of the other. When in health any organ or part of an organ works, there is a demand for more blood, and through the vaso-motor reflexes a physiological congestion occurs, which means that the muscles of the arterioles relax, allowing more blood to fill up the capillaries. When this takes place over considerable areas, as during digestion or in walking, the absence of propelling action in the local peripheral heart becomes sensible, and reflexly the central organ is called upon to greater exertion, as becomes manifest during these acts by the increase in the number and strength of its contractions. This extra exertion on the part of the central heart, carried on several times during the day, does not lead to a state of hypertrophy.

In arterio-sclerosis the function of the organs may, through different routes than normally, exact more work from the heart, but still with our experience of what does not occur after repeated daily calls for increased exertion on the part of the central heart in health, we can scarcely ascribe the cardiac hypertrophy in arterio-sclerosis to similar calls. We may, however, fully explain this hypertrophy, and the consequent increased blood pressure, when we remember that not only during given periods of the day but throughout its 24 hours the central heart has to carry on the circulation without the propelling aid of the arteriolar muscle. I am, Sir, yours faithfully,

JAMES T. R. DAVISON, M.D. Edin.

Buenos Aires, August 8th, 1912.

A NATURAL CORRECTION OF MYOPIA.

To the Editor of THE LANCET.

SIR,—The truth of your remark upon the need of further evidence as to the refraction effect of the recti muscles is so obvious that it was in fact the like persuasion which induced me to bring the matter before the profession at the present stage. The doctrine that convergence tends to elongate the healthy eye has become almost a first principle of ophthalmic science; has blinded the retinoscopist to things that are every day transpiring, in the most literal sense, under his nose; and has confused the theory of myopia to a degree calculated to make a cynic smile and an educated Chinamen stare. In particular it has been the flooding of the British ophthalmological market by this cheap importation from Germany which, more than aught else, has caused the facts connected with the relaxation enlargement of images to be overlooked and ignored. In a mental atmosphere like this the opinions of an isolated inquirer can be of little moment. What is needed is that the multitude of practitioners, who have accepted the elongation theory upon trust, should be induced to admit the possibility that it may after all be less true, or less exclusively true, than they had imagined. May I take the present opportunity of saying how pleased I am to be assured of your sympathy in the work of reopening the question, and of expressing a hope that, as the result of your advocacy, some of your readers may be led to repeat and extend my experiments? The best subjects are, as I have said, uncorrected myopes of low degree, but others, in whom the association between convergence and accommodation is not too strong, may, with the aid of lenses, be made to yield quite definite information. With ordinary precautions—watching the accommodation, taking care not to fatigue his subject, giving ample time for the lens and eyeball to alter their shapes—the retinoscopist in moderate practice ought to be able, in a few days, to satisfy himself on the main point as to whether the globe shortens or elongates in convergence. I am, Sir, yours faithfully,

Stoke Newington, Sept. 16th, 1912. I. B. MUIRHEAD.

ENUCLEATION *v.* TONSILLOTOMY.

To the Editor of THE LANCET.

SIR,—The letters of Mr. H. Barwell and Mr. W. Stuart-Low in the issues of THE LANCET of Sept. 7th and 14th respectively raise two important points in the surgery of the tonsil. At the outset there appears to be some confusion in the literature regarding the terms used to describe the operations mentioned. Enucleation of the tonsil generally refers to complete removal, generally in one piece, by some form of dissection, although, I suppose, if taken out in two pieces it would be no less an enucleation. Removal by the guillotine is usually spoken of as tonsillotomy. Since it has been shown by several authorities that the tonsil can be equally well removed in its capsule by the guillotine, the term enucleation has been applied to this procedure. Less confusion might arise if complete removal were styled a tonsillectomy, which might be further described as being carried out by dissection or by the guillotine. Tonsillotomy should be reserved for incomplete removal. With regard to tonsillectomy by the guillotine it is still stated that this operation fails in a large number of cases, and that it is applicable to certain types of tonsil only. Mr. Whillis and myself showed in two papers on the Enucleation of Tonsils by the Guillotine, published in THE LANCET, Sept. 17th, 1910, and the *British Medical Journal*, Nov. 25th, 1911, that 74 per cent. of tonsils could be removed, complete in their capsule, in one piece by that instrument. In addition to that a further 13·5 per cent. could be removed clinically complete, while an additional 9·5 per cent. could be removed completely in two or more pieces, making in all 97 per cent. The necessity for removal in two or more pieces was due to the fact that a small-sized guillotine was used, and when the tonsil could not be completely pushed through the ring and removed whole it was necessary to remove it in two or more pieces. This method then described has been further advocated by Milne Dickie in the *Edinburgh Medical Journal* for this month. For the small percentage of failures by this method, and in adults, we practise tonsillectomy by dissection, following the technique described by Waugh in THE LANCET, May 8th, 1909. In the latter of our papers we stated: "We believe that if the tonsil requires removal it should be completely removed," and we have found no cause to alter this attitude. It is generally admitted that tonsils causing infection, either (1) local; (2) peri-tonsillar; (3) lymphatic; (4) of the natural passages, either respiratory or digestive; or (5) of the blood stream, should be extirpated wholly. It is for the hypertrophied tonsil with a preponderance of mechanical

[1] THE LANCET, July 13th, 1912, p. 69.

effects that doubt as to the advisability of this procedure occurs. But in these cases, although on inspection the tonsil commonly appears clean, so often in operating one empties the tonsillar fossa of foul cheesy matter, or finds on removal a septic focus deeply situated in one or many lacunæ, that entirely satisfactory results are to be attained only by performing tonsillectomy in all cases. Since this may be done by the guillotine alone under ethyl chloride anæsthesia, there is now no argument against the severity of the operation, which tonsillectomy by dissection seems to be considered.

I am, Sir, yours faithfully,

Newcastle-on-Tyne, Sept. 16th, 1912. FREDERICK PYBUS.

THE COMPLETE MASTOID OPERATION.

To the Editor of THE LANCET.

SIR,—In THE LANCET of August 17th, p. 429, Mr. Charles A. Ballance mentions that while in Copenhagen last year he found that I had adopted the blood-clot treatment as my ordinary method of treating cases of the complete mastoid operation. Mr. Ballance has misunderstood my words, as I never have used this treatment in any case of complete mastoid operation, but confined myself to using it only in a great number of cases of simple mastoid operation (after Schwartze's method).

I am, Sir, yours faithfully,

Copenhagen, Sept. 12th, 1912. H. MYGIND.

THE NIGHT NOISES OF THE METROPOLIS.

To the Editor of THE LANCET.

SIR,—I venture to appeal through your columns to the profession to assist me in moving the authorities to take some steps towards mitigating the intolerable night noises of London and suburbs. If it could be shown that in addition to their nuisance they were having, or were likely to have in time, especially if they go on increasing as they must do unless checked, a deleterious effect on the health of a considerable portion of the community, Government might be prevailed upon to appoint a committee to consider the matter. I shall be very happy to have a post-card from any member of the profession who approves my action, and I trust you will be pleased to lend the movement your support.

I am, Sir, yours faithfully,

CHARLES MONK,
Lieutenant-Colonel, I.M.S. (retired).

Burlton Lodge, Station-road, Barnes, Sept. 11th, 1912.

TO MEDICAL FREEMASONS.

To the Editor of THE LANCET.

SIR,—May I again through the medium of your widely read columns appeal to medical men, and medical Freemasons in particular, for votes for the Masonic charities?

At the forthcoming elections there are several medical candidates. Votes for any of the Masonic institutions are equally acceptable, as exchanges can be effected, and will be gratefully received and acknowledged by me.

I am, Sir, yours faithfully,

WILLIAM WILSON,
Secretary, St. Luke's Medical Lodge of Instruction.

184, Goldhawk-road, W., Sept. 17th, 1912.

THE MEDICAL PROFESSION AND THE NATIONAL INSURANCE ACT.

To the Editor of THE LANCET.

SIR,—Members of the medical profession who hold appointments as medical officers to Friendly Societies are being urged to resign the same forthwith. Many, I understand, have already resigned. To those who have not I would suggest that they "wait and see" what provision the Regulations, now about to be issued by the Insurance Commissioners, make for medical remuneration. Last Friday a deputation from the Imperial Medical Reform Union was received by the Commissioners, and urged the adoption, as one of the methods of remuneration, of the scheme formulated by the union which has already been published in your columns. The chief points of this scheme are free choice of doctors and payment by fees for services rendered and medicines supplied.

Should the Commissioners for England adopt such a method of remuneration as an alternative to capitation payment (as is by no means improbable), insured persons who apply for medical aid will be attended and paid for as if they were private patients. This will be in keeping with the best traditions of medical practice and should supersede the discredited method of capitation payment.

I am, Sir, yours faithfully,

GEORGE BROWN,
General Secretary, Imperial Medical Reform Union.

Basinghall-street, E.C., Sept. 16th, 1912.

SIXTH INTERNATIONAL CONGRESS OF OBSTETRICS AND GYNÆCOLOGY.

(BY OUR SPECIAL REPRESENTATIVE.)

Summary of Proceedings.

THIS Congress was held in Berlin from Sept. 9th to the 13th, under the patronage of the Empress of Germany. Professor E. BUMM, Geh. Med. Rat, of the Charité Hospital, the President, was ably assisted by Professor August Martin. On the 9th the Congress opened with a meeting of the Organising Committee, which was followed by a festival inauguration in the House of Parliament, when addresses from the representatives of the Government, the public authorities, and the delegates were given. That evening there was a reception in the garden of the House of Parliament by the German Obstetrical Society. On the following day the first and most important discussion, on the Treatment of Wounds of the Peritoneum, commenced, when the various referees delivered their reports and several papers were read. The same evening a dinner and reception to members of the Congress was given by the President. On Sept. 11th the first discussion was continued, and the second discussion, on the Surgical Treatment of Uterine Bleeding during Pregnancy, Delivery, and Childbed, was opened. On Wednesday evening a reception was given by the city of Berlin in the town hall. Thursday was devoted to individual communications, and on Friday morning various demonstrations were given by different members of the Congress at the Charité Hospital. On Thursday all the members were invited to a splendid performance at the Royal Opera House of Beethoven's only opera *Fidelio*. The afternoon of Friday was devoted to excursions, and the members were taken round the beautiful lake at Wannsee, returning by Potsdam.

The Congress has been a most brilliant success. The organisation was admirable, and this was largely due to the efforts of Privat-docent E. Martin, the general secretary. In all, 632 adherents registered in the Congress Hall. All lady friends of members were made members of the Congress, and a special ladies' committee met daily in the Herrenhaus (House of Lords) to make arrangements for their amusement. These included various excursions through Berlin.

Each morning there were operations at the various clinics—at the University Frauenklinik by Professor Bumm, at the Charité by Professor Franz, and at the other clinics by Professor Mackenrodt, Strassmann, Landau, Dürssen, Liepmann, Dützmann, and Nagel. The scientific work of the Congress is referred to elsewhere. There were also demonstrations both at the University Frauenklinik and the Charité with exhibition of various models and preparations of gynæcological and obstetrical interest. In the Herrenhaus there was a most complete exhibition of anatomical preparations and models, as well as instruments.

Professor von Ott showed exemplifications of the "Beleuchtungsmethode" by the illumination mirror, also a phantom of the abdomen and the bladder. An interesting item of the exhibition was a new form of cystoscope for the bladder and urinator, shown by Louis and H. Loewenstein and Georg Wolf of Berlin.

The members from Great Britain included Sir Alexander Simpson, Sir John Halliday Croom, Dr. Jervois Aarons, Dr. McArdle (Dublin), Dr. Herbert Spencer (London), Dr. Thomas Wilson (Birmingham), Dr. Hellier (Leeds), and Dr. H. Macnaughton-Jones, who was reporter for the United Kingdom of the principal discussion of the Congress on the surgery of the peritoneum.

Importance of International Congresses.

In his opening address the President of the Congress (Professor BUMM) pointed out the importance of international congresses, where the work of the individual scientific men can be discussed and criticised. In medicine as well as in any other science one has to come forward with one's ideas, and this is done best in international congresses, which gain their greatest importance from this fact. Men like McDowell, who performed the first ovariotomy, and Semmelweis, who discovered the origin of puerperal fever, were not appreciated by their contemporaries, and had to fight hard battles for their ideas. Nowadays those men would not have to go through such ordeals; they need only appear before a congress, where their work would at least be received by open-minded hearers. A further advantage of the congresses is the fact that one hears a man talk about his work, and can form a much better opinion than any reading of his articles can give. It may be true that every congress cannot show any epoch-marking discovery, but the stimulus to new and better work remains.

The meeting of the first day and a half was devoted entirely to the discussion of

The Treatment of Peritoneal Wounds.

Dr. BROUHA (Lüttich) recommended that the peritoneum should be dry cleaned, washing with physiological salt solution being more dangerous than useful. All antiseptics should be avoided with the exception, however, of a weak iodine tincture, which may serve for touching the stumps and suspicious points. Most Belgian gynæcologists have no experience respecting the prophylactic value of intraperitoneal camphor oil injections. On the other hand, several of them have used with success the oxygen process of Professor Thiriar, of Brussels, after suspicious laparotomies.

Dr. K. FRANZ (Berlin) stated that every peritoneal wound is to be considered bacteriologically as infected. All investigators who have examined the peritoneum bacteriologically after operations have found bacteria. It is impossible to conduct an operation entirely free from germs. In most cases, however, the germs thus introduced are not harmful, for (*a*) they attain the peritoneum in too small a number, (*b*) they are not virulent, or (*c*) they are destroyed by the protecting forces of the peritoneum. In order that germs may only enter the abdominal cavity in a small number and may not be virulent the strictest asepsis during the operation is necessary. Instruments and bandaging material can be sterilised with certainty. The hands of the operator and his assistants are dangerous. Rubber gloves completely remove this danger. Although the patient's skin cannot be completely freed from germs with iodine tincture, still it can be sufficiently disinfected for all practical purposes by this means. The covering of the skin with sterile cloths is a necessary supplement to this disinfection. The air-germs, which certainly form a great part of the germs to be found in the wounds, are not dangerous. The principal danger to the peritoneal wounds is threatened by germs situated in the body of the patient herself. These can be removed or diminished by skill in operating. It is impossible to destroy these dangerous bacteria by chemical disinfectants. At most it is possible to reduce the virulence of the vaginal germs or those situated on the surface of a carcinoma.

Dr. H. MACNAUGHTON-JONES (London) read a paper, accompanied by a full report compiled from the views of 67 of the leading obstetricians and gynæcologists in the United Kingdom, in which he stated that mechanical irritation of the peritoneum, instrumental or manual, under strict aseptic methods, if not unduly prolonged or roughly carried out, does not lead to inflammatory or exudative processes. There are antecedent conditions, local and constitutional, which predispose to such processes, and to the presence of bacteria both during and after operation, which are inimical to the normal reaction of the peritoneum. These conditions were fully dealt with in the report. The introduction of bactericides or any irritative chemical fluid into the peritoneal cavity is always to be avoided if possible. If introduced, the nature of the agent and strength chosen must be such as to be readily tolerated by the peritoneum. Sterilised physiological saline solution is the best medium for cleansing the peritoneum. Dry treatment of the peritoneum is regarded by most surgeons as preferable to moist. This does not exclude mopping and wiping dry with swabs wrung out of warm saline or other solution. Lavage, tamponade, and drainage are at best necessary evils, always to be avoided when possible. The nature and character of the material selected for ligatures and sutures must be chosen according to the purpose which it is designed to fill. *Ceteris paribus*, within the peritoneal cavity absorbable material is preferable to unabsorbable, and the strength should be duly proportioned to the demand made on it. Catgut of various strengths would seem to answer most purposes required. A number of surgeons prefer silk, linen thread, or "celloidinzwirn" for ligatures of vessels. By one surgeon the danger of tetanus arising from the use of catgut has been noticed. Pus, blood, or cyst contents, if allowed to remain in the peritoneal cavity, are sources of irritation, exudation, and peritonitis. Under the term "asepsis," applied to operative interference, must be included everything from the previous preparation of the patient up to the close of an operation; surroundings, operator, all assistants, as well as the material, instruments, and appliances employed. In the presence of factors predisposing to irritation, asepsis also involves the prophylactic steps which should be taken to prevent their injurious action and effects. It must also embrace the best means of treatment of any untoward accidents and complications which are met with during or are the immediate consequences of the operation. Asepsis can never be secured without complete hæmostasis and deliberate peritonisation of all exposed surfaces. Disinfection of the contents of the bowel after operation by the administration of such a disinfectant as cyllin is also of importance. Gonorrhœa, having an important relation to inflammatory processes which involve the pelvis and may spread to the general peritoneum, has to be specially considered in view of such possible spread, as also the most judicious surgical course to be adopted to prevent this. The micro-organisms present in fluids or exudations which predispose to irritation and peritonitis are B. coli, staphylococcus aureus, streptococcus longus, pneumococcus (rarely), and the B. aerogenes capsulatus.

Dr. P. LECÈNE (Paris) contended that the best method of treating the peritoneal wound in order to avoid infection is to treat it both aseptically and physiologically at the same time: aseptically, by reducing the infection during the operation to an absolute minimum and by attempting with all possible means to reduce the endogenous infection, which latter is always more difficult to combat; physiologically, by sparing the natural means of defence of the peritoneum and by re-establishing at the end of the operation as normal a disposition of the serosa as possible in order to permit it to combat efficaciously any infection which, in spite of all the care taken, may have been produced. He attributed the great progress in peritoneal surgery in the last ten years to the following various factors: (1) A better choice of the moment, the nature and the extent of the operation in each case; (2) systematic use of sterilised rubber gloves; (3) realisation of strict asepsis during the operation, together with limitation of the field of operation; and (4) more judicious indications and better realisation of drainage, when this is required.

Dr. B. J. KOUWER (Utrecht) maintained that for the results of abdominal section in clean cases operative technique is far more important than antiseptic measures. Perfected technique aims in itself at avoiding any possibility of infection of the surrounding peritoneum by the infected part, and thereby becomes the real asepsis, superior to chemical, thermical, and mechanical asepsis.

Dr. WERTHEIM (Vienna) advocated the greatest possible preservation of the peritoneum (avoiding mechanical, chemical, thermic injury); the cleanest and driest possible work, and particularly the removal of all tissue material becoming necrosed; the covering of all defects of the serosa with peritoneum; corresponding treatment of the subperitoneal spaces; and the seclusion also of intraperitoneal spaces if they are infected or suspected of infection.

Dr. OSKAR BEUTTNER (Geneva) stated that the results are the same whether the operation is performed with "damp" or "dry" asepsis, and no fundamental difference can be recognised between the two methods. The only difference between them consists in the fact that in the case of "damp asepsis" the gauze compresses are saturated *ante operationem* with physiological salt solution, whereas in the case of "dry asepsis" this saturation takes place during the operation, and the saturating liquid is supplied by the body itself (peritoneal secretion, ascites, blood, contents

of cysts, pus.) In the Geneva Clinique it was possible to make the observation that by a greater limitation of the tamponade drainage in the years 1907 to 1912 the mortality was by no means increased in comparison with the more frequent use in the years 1903 to 1907. The indication for the tamponade drainage must be made more and more rigorous and must have a better scientific foundation. The Geneva Clinique uses after the Wertheim radical operation, in addition to an exact peritonisation of the pelvic cavity, an extensive tamponade drainage upwards and downwards. They have the decided feeling that if the rise of peritonitis is not thereby absolutely prevented, it can at any rate be very much restricted.

Besides those articles just mentioned, quite a number of other articles were read pertaining to this subject.—Dr. BOLDT (New York) spoke on the early getting up of laparotomised patients and advocated that procedure.—Dr. HÖHNE (Kiel) spoke on the specific treatment of the peritoneum by camphor oil injections, with which he saw good results in over 200 cases. He was opposed by Dr. HEIMANN (Breslau), who came to quite opposite conclusions which he gained through experimental researches.

Considerable time was allotted to the discussion of

Cæsarean Section.

Dr. KÜSTNER (Breslau) advocated the extraperitoneal Cæsarean section, Dr. HENKEL (Jena) the cervical transperitoneal, and Dr. OPITZ (Giessen) spoke on cervical Cæsarean section.—In the discussion the following spoke: Dr. VON OTT, Dr. BOLDT, Dr. VEIT, Dr. FEHLING, Dr. KÜSTNER, Dr. OPITZ, Dr. KROEMER, Dr. L. FRAENKEL, Dr. BAISCH, and many others.

The meeting of the afternoon of the second day was devoted to the discussion of the

Surgical Treatment of Uterine Hæmorrhage during Pregnancy, Delivery, and Childbed.

Dr. COUVELAIRE (Paris) summarised the present state of the principles and practice of French accoucheurs respecting the surgical treatment of hæmorrhages due to insertion of the placenta on the inferior segment and of retro-placentary hæmorrhages. Under the general term "surgical treatment" he included direct surgical hæmostasis by hysterectomy and hæmostasis produced automatically by the uterine muscle after evacuation of its contents by hysterotomy. In hæmorrhages arising from detachment of the placenta inserted on the inferior segment, most French obstetricians have up to the present remained faithful to the purely obstetric methods: (1) wide rupture of the membranes; (2) eventually, introduction of an incompressible or Champetier de Ribes ball, or simple turning without immediate extraction (Braxton Hicks). The complete statistics published at Paris, Lyons, and Toulouse in the last few years render it possible to form an exact idea of the results obtained by the execution of this therapeutic method:—

Pinard	162	.....	10 women died.
Champetier de Ribes	67	.....	6 ,, ,,
Bas...	153	.....	14 ,, ,,
Maternity Hospitals of Lyons	167	.....	13 ,, ,,
Ferré	35	.....	4 ,, ,,
	584		47 ,, ,,

Or a gross mortality of 8·2 per cent. Infection and violence during the evacuation of the uterus are responsible for three-fifths of the cases of death. The extremely small risk of death by hæmorrhage (1·2 per cent.) does not justify either the prophylactic practice of Cæsarean premature delivery or the systematic practice of the evacuation of the uterus by hysterotomy during labour. The total fœtal mortality oscillates with the obstetric methods between 44 and 60 per cent. It is generally due to debility caused by prematuration. French accoucheurs have in general preserved, with regard to obstetrical hæmorrhages, the pre-eminence given to the non-surgical methods of hæmostasis. They have endeavoured to define the real indications of the surgical methods, which must be reserved for the relatively rare cases in which obstetrical methods are powerless or dangerous. The surgical solutions are certainly often more rapidly and easily realised. But the price paid for their success, which, moreover, cannot be constant, is the definitive mutilation or the decrease of the obstetrical value of the woman operated on. Except for the rare cases in which surgical action must be preferred, it must be recognised that the improvement of the therapeutic results will be the consequence not of an unjustified extension of the indications of surgical methods, but of the perfectioning of the obstetrical education of physicians and accoucheurs.

Dr. PH. JUNG (Göttingen) laid down rules for the treatment of hæmorrhage during pregnancy, labour, and the puerperium. With regard to compression of the aorta, he considered that in cases of acute hæmorrhages caused by lacerations of the uterus, placenta prævia, uterine inertia, when the usual methods fail, temporary compression of the aorta may save some lives. Compression by finger is generally not sufficient. Momburg's constriction is at present the best method of compressing the aorta; it is far superior to the other complicated apparatus.

Dr. A. MAYER (Tübingen) regarded compression of the aorta with the Momburg bag as serious to a diseased cardiac and vascular system. It highly strains even the healthy heart and vascular system, and it may become dangerous to it. If by an incorrect application of the bag the venous reflux should be entirely barred—the arterial afflux being, however, only partially interrupted—a sort of deadly hæmorrhage into the veins may take place. In case of considerable nephroptosis the disconnexion of the kidney from the circulation caused by compression of the renal artery is to be feared, which may injure the kidney in its structure and its functions.

On the third day of the meeting considerable time was devoted to the discussion of the treatment of

Prolapse.

Dr. GOFFE (New York) read a paper in which he argued that in cases of prolapsus uteri with attendant rectocele and cystocele the great factor to be reckoned with is intra-abdominal pressure. Pelvic pressure is simply intra-abdominal pressure continued into the pelvis. All applied force tends to move in straight lines. It can be diverted from a straight line by centrifugal attraction or it can be deflected by an opposing plane placed at any or at varying angles to its direction. As Sturmdorf says, an intrapelvic and an extrapelvic deflecting mechanism exercising harmonious and reciprocally balancing influences maintains the topographic stability of the pelvic contents. The intrapelvic mechanism is represented by the uterus with its ligamentous extensions, the extrapelvic deflector by the muscular and fascial elements of the pelvic floor. The operation described by Dr. Goffe is based upon the principle that to secure most perfect and lasting results these muscular and ligamentous supports must be anatomically and functionally restored. In all the steps of the operation the fascia and connective tissue are carefully sought and stitched to give support. The operation restores the position and fixation of the trigonum by spreading out the base of the bladder upon the uterus or broad ligaments and stitching it then at as high a level as may be indicated in each individual case. All cases are divided into two classes—viz., (1) patients in the child-bearing period; and (2) patients at or beyond the menopause. In the first class the uterus is retained and its normal position restored by shortening its ligaments. The bladder is dissected free and spread out upon the face of the uterus and broad ligaments by three stitches in its wall. In the second class the uterus is removed and the plane of tissue designed to deflect intra-abdominal pressures is reconstructed by stitching together the stumps of the broad ligaments across the pelvis. The operation is done entirely through the vagina.

Dr. KOBLANCK (Berlin) read a paper

On the Indication and Choice of Operation for Puerperal Sepsis.

He said that surgical treatment is indicated in all forms of puerperal sepsis in which the infection is spreading from a localised focus of disease; every case of septic peritonitis should be operated upon as early as possible; metastatic affections of pleura, joints, muscles, or skin form no contra-indication against radical surgical measures about the genital organs; the extirpation of the septic uterus should be performed by way of laparotomy.

Dr. TEILHABER (Munich) read a paper on

The Treatment of Carcinoma Patients After the Operation,

in which he suggested improving the circulation in the cicatrix in the third month after the operation, when the

cicatrix begins to shrink, by treatment with diathermy and high-frequency currents and with massage, hot baths, and fibrolysin.

Dr. HIRSCH (Berlin) read a paper on

Woman's Work and Woman's Diseases.

He said that economic development in Germany and other civilised countries obliges an ever-increasing proportion of the female population to do industrial work. This labour is very injurious to the health of women, first on account of the conditions of life which are generally very unfavourable, but more in consequence of the specific diseases associated with industrial activities. The genital organs of working women are implicated indirectly by organic and constitutional injuries and directly by industrial diseases. The consequences of feminine work are manifested both in gynæcological diseases and in an increase of miscarriages and premature births and of troubles in pregnancy, birth, and puerperium. An ample legislation for protecting workwomen must be demanded in which the first place must be given to factory-hygienic protective measures and to the protection of maternity. The preliminary condition is the study of the pathology of feminine industrial diseases, and in this the gynæcologist must take an active part.

Other Papers.

Dr. STROGANOFF (St. Petersburg) read a paper on the Theoretical Foundation of the Prophylactic Method of the Treatment of Eclampsia, in which he advocated his well-known conservative treatment of this disease.

On the Roentgen rays in obstetrics and gynæcology Dr. HEYNEMANN, Dr. IMMELMANN, Dr. MANFRED FRAENKEL, Dr. KROENIG, and others spoke. Some of these highly advocated the use of the X rays for treatment of myomata.

At the close the PRESIDENT addressed the meeting and thanked the members for coming to Berlin and contributing to the success of the Congress. Professor PESTALOZZA expressed the appreciation of the Italian members, and Dr. MACNAUGHTON-JONES proposed the vote of thanks to Privat-docent E. Martin, the secretary-general.

As the meeting place of the next congress in 1915 America was chosen.

WALES.

(FROM OUR OWN CORRESPONDENT.)

Scheme for Dealing with the Feeble-minded.

MANY of the boards of guardians in South Wales have shown commendable zeal in providing for those under their care accommodation and treatment in accordance with present-day views. In the Pontypridd union, for example, which contains a population of nearly 300,000 persons and which includes the two Rhondda valleys, there have in recent years been established homes for children, an institution for old people, and a separate sick infirmary. The question of dealing with the feeble-minded has lately been under the consideration of a joint committee representing the unions of Bridgend, Gower, Neath, Pontardawe, Pontypridd, Merthyr Tydvil, and Swansea, which are concerned with an aggregate population of 866,000 persons and in which the assessable value is over £3,500,000. The result of the committee's deliberations has crystallised into a proposal to establish institutions to accommodate 85 children, 145 male adults, and 212 female adults. To that for the children a small school would be attached where the younger children could be taught according to their capacity, and useful knowledge imparted to the elder children. The main institution would be built on the pavilion system, and give accommodation to about 200 adult persons, and there would be in addition five separate homes each to accommodate 40 to 50 persons, who would be received in them for the purpose of classification. It is proposed that about 100 acres of good farm land should provide the site of these buildings, so that work might be found for those who are capable of doing any. The cost of the whole scheme is estimated at about £60,000, which it is intended should be borne, together with the administrative expenses, by each union in proportion to the respective assessable values.

School Clinics for Monmouthshire.

One of the earliest school clinics to be established in this country was that in the urban district of Abertillery, Monmouthshire, which is under the care of the school medical officer, Dr. A. E. Remmett Weaver. The local education authority of Monmouthshire has now agreed to the principle of establishing other clinics at an estimated capital cost of £11,000 and an annual expenditure of £2000. The county school medical officer, Dr. A. Rocyn Jones, recommends that the headquarters should be at Newport, with subsidiary clinics at Abergavenny, Blaina, Blaenavon, Chepstow, Cross Keys, Maesycymmer, Monmouth, Newbridge, Pontllanfraith, Pontypool, Rhymney, Usk, and Tredegar. In the first instance it is proposed to appoint two whole-time dentists, a whole-time ophthalmic surgeon, and four nurses, and it is hoped that arrangements may be made with the Welsh National Memorial to share the waiting-rooms and consulting-rooms in connexion with the tuberculosis scheme.

Swansea Hospital Staff and the National Insurance Act.

The board of management of the Swansea Hospital, of which Dr. E. Le Cronier Lancaster is the chairman, has considered at a meeting specially called for the purpose a communication from the honorary medical staff stating that all the members of the staff with one exception had subscribed their names to the pledge of the British Medical Association, and that after that portion of the National Insurance Act referring to medical benefits comes into operation and until the terms and conditions of administering those benefits have been approved by the profession they would not, except in cases of urgent necessity, render professional service to an insured person through the service of any voluntary medical charity or coöperate with any member of the profession who is under contract to render service to insured persons upon terms which are not approved by the profession. Dr. Lancaster was careful to make it clear that there was no quarrel between the staff and the board of management—indeed, he rightly said that the relations between the medical staff and the controlling authority had always been of the most cordial character. He added, however, that it was deemed desirable that the position of the staff should be made clear at the earliest moment. In the course of discussion the action of the staff was criticised by some of the lay members of the board, though in no unfriendly spirit, and the phrase "urgent necessity" was defined as cases of serious accident and of illness seriously endangering life. In the end it was decided to adjourn the consideration of the whole question until Nov. 27th next.

Sept. 16th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Tuberculosis in Aberdeen: The Recommendations of the Medical Officer of Health.

Dr. Matthew Hay, medical officer of health for the city, has issued to the public health committee of the Aberdeen town council an exhaustive report in accordance with instructions in view of the Parliamentary grant for sanatorium purposes under the National Insurance Act. Dr. Hay says that as public health authority of the city the town council's scheme must embrace practically all tuberculous patients, except those whose means render them independent of any assistance from a public authority; it cannot be confined to persons insured under the Insurance Act. The ultimate object of the present movement being the extinction, not the mere treatment and cure, of tuberculosis, its object cannot be attained unless all the cases requiring aid and control are brought within the scheme. "The ultimate aim of administrative work in regard to the prevention and treatment of tuberculosis should be, 'Every home and every workshop a sanatorium.'" It is very desirable that control of the whole campaign against tuberculosis should rest, as far as possible, with the public health authority, which alone is vested with necessary powers under the Public Health Acts, and whose officers alone possess the power of entry into insanitary dwellings and workshops. Taking the number of insurable persons as 30 per cent. of the population, the number of the insured tuberculous will probably amount to about 49,000. At 1*s.* 3*d.* per insured person this gives an annual sum of £3062 for sanatorium

benefit; this is assuming that the whole of the ordinary sanatorium benefit is available. It is, therefore, important that any steps taken may proceed along the right lines, or at least not difficult to retrace if necessary.

The gist of Dr. Hay's recommendations is that the treatment of tuberculous cases be continued at the City Hospital until sanatorium accommodation is provided. When that is established the City Hospital tuberculosis wards should be used for advanced and observation cases and for educative purposes, the shelters being used at night by such as can work in the day. The council should provide a dispensary for examination and treatment, attached for convenience and economy to the City Hospital. A senior tuberculosis medical officer should be chosen from among the medical consultants of the city at an honorarium of £200 and a junior at a salary of £300 to £400—or £50 less if with residence at the hospital—both to act as medical officers of the dispensary and hospital tuberculosis wards. That the health visitor should also attend the dispensary two or three times a week, an additional visitor being appointed if necessary. Medicines and a dispenser should be provided at the dispensary. The Departmental Committee's suggestion that married women living at home should be placed under the care of a general practitioner to be paid out of the sanatorium funds he thinks would involve a cost of £1000 per annum, or of £2000 if "dependents" are included. Such payments should be uniform for different districts. Food might be provided out of sanatorium benefit for patients cared for at home. The greatest opportunity for the public health authority will lie in the dispensary part of the benefit, for exercising control and prevention; therefore the medical officers should be in touch with the Public Health Department, and the junior tuberculosis officer should have the status of an assistant medical officer of health. The Insurance Act grant available for Aberdeen for a dispensary would be about £220.

The council should undertake the provision of a country sanatorium containing 40 or 50 beds, with facilities for increase, erected on a sheltered site of 50 to 100 acres, above the sea level, near rail and tram, not too far from Aberdeen, and with suitable gravitation for water and drainage. Dr. Hay suggests the desirability of combination between the local authorities of Aberdeenshire, Kincardinshire, and Banff. A portion of the ground might be farmed to reduce rental. The Departmental Committee state that the cost of a sanatorium should not exceed £150 per bed, inclusive of cost of site and equipment. If, as is expected, the amount of the Treasury grant will be partly based on population, since the total sum for Great Britain and Ireland is £1,500,000, the share available for the city of Aberdeen would be about £5000. A 50-bed sanatorium at £150 a bed would cost £7500, or more if the area of ground were large. This does not include wards for children, for which an additional £1200 might be allowed, the same administrative buildings sufficing for all. The cost of maintaining a sanatorium is usually reckoned at not less than 25*s.* a week for each patient, or £65 a year for each bed occupied. The Departmental Committee have put it at 25*s.* to 30*s.* a week. The experience of the tuberculous wards at the City Hospital shows that the cost per patient is about 14*s.* to 15*s.* a week for food, drugs (including tuberculin), cleansing materials, clothing and bedding repairs, laundry, wages and food and uniform of nursing staff and ward maids. This does not include any allowance for cooking, heating and lighting, water-supply, rates and insurance, rent and repair of buildings, upkeep of grounds, matron or medical attendance. For a sanatorium of 50 beds at £70 a bed, the annual maintenance would cost £3500, or with beds for children, say, £4400. Besides the properly qualified medical superintendent at a salary recommended by the committee of not less than £500 a year, with house, an institution of 50 or 60 beds up to 100 beds would require an assistant medical officer, whose salary may be put at not less than £150 per year with board.

In estimating the cost to the community of a complete scheme allowance ought to be made for the payments that may be required by various institutions—e.g., cases requiring surgical treatment will probably continue to be treated in the Royal Infirmary. If "dependents" likewise are to share, payments may also be due to the Sick Children's Hospital. A comprehensive scheme for tuberculosis, such as is contemplated by the Departmental Committee and the Local Government Board, implies provision for the treatment and care of nearly all the tuberculosis cases in four-fifths of the entire population. An after-care committee ought to be created for the purpose of helping the tuberculous patient after he leaves the sanatorium. The following is a summary of the cost of the more pressing of these proposals, on the assumptions that dependents are included, that a sanatorium is erected, and that the cases of tuberculosis at present at Newhills and Oldmill have begun to come into the City Hospital and the sanatorium, and also that the Children's Hospital and the infirmary are being relieved of a proportion of their cases:—A. *Capital Account.*—Expenditure: Dispensary, £275; Sanatorium (for adults and children), £8700. Total, £8975. Grants in Aid: Finance Act, 1911 (probably 3/5ths of expenditure but not exceeding £5500), £5355. Deficit, £3520. B. *Income and Expenditure Account.*—Expenditure: Dispensary, £3100; Sanatorium, £4900; Hospital treatment, £5010. Total expenditure, £13,000. Income: Sanatorium benefit, £3062. Deficit, £9938.

Sept. 17th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Local Medical Committees and Secrecy.

AT present Local Medical Committees all over Ireland are busy organising the forces of the profession and discussing plans for their future action, both as regards the administration of the sanatorium benefit and in reference to friendly society practice. Attempts are being made to persuade all practitioners to sign a pledge promising, *inter alia*, to make no bargain with a friendly society except through the Local Medical Committees. It is generally understood that discussions arising out of such matters should be regarded as highly confidential, and that nothing should be communicated to the press except through official channels. Unfortunately, some members of the medical committees seem to have been rather careless of their obligations in this respect, with the result that the work of the committees has been greatly hampered. In Dublin the Local Medical Committee has been particularly unfortunate. There has been a constant leakage of information toward certain newspapers, and both the public and members of the profession outside the committee have been misled as to the policy and conduct of the committee. For instance, last week a paragraph appeared in one of the leading daily papers purporting to be a report of a meeting of the Local Medical Committee held a day or two previously. An official contradiction the next day explained that what was merely a desultory conversation was reported as if it were a decision of the committee on an important point of policy. The paragraph gave the impression of being inspired by a desire to support medical men accepting offices in breach of their undertakings.

The Congratulatory Addresses to Dublin University.

An interesting exhibit is at present on view in the School of Anatomy, Trinity College. It consists of the several congratulatory addresses presented to Dublin University last July on the occasion of the celebration of the Bicentenar of the School of Physic. Very many of these addresses afforded excellent examples of the suitability of Latin as the medium of dignified communications from one learned body to another. The "neatness" with which topical allusions were interwoven by the authors was only equalled by that of the Public Orator of Dublin (Dr. L. C. Purser) in presenting the candidates for honorary degrees at the celebrations. Though the majority of the addresses are in Latin, not a few learned bodies have used the vernacular without loss of dignity. It is interesting to note the names of those famous in the history of the Dublin School who are chosen for special mention by the various authors. The most frequently met are Stearne, Dun, Robinson, Cleghorn, Fielding, Ould, Macartney, Stokes (father and son), Graves, Corrigan, Bennett, Cunningham, Haughton, and FitzGerald. The decorative features of most of the addresses are very charming. Tokyo and Kyoto send from far Japan representative specimens of the wonderful art that Japan alone can produce. Cairo sends a beautiful example of Egyptian work. The Trinity College authorities have done wisely in

giving the public an opportunity of scrutinising these documents before they are interred among the college archives.

Meeting of the Medical Profession of Dublin.

A meeting of all medical practitioners resident in the county borough of Dublin has been summoned for next Tuesday afternoon, Sept. 24th, at 4.30 P.M., at the Royal College of Surgeons, to receive the report of the Local Medical Committee and to decide on a future course of action. It is expected that steps similar to those taken by the profession in Belfast will be approved.

The Friendly Societies in Belfast and the Medical Profession.

At a meeting of the various Belfast Friendly Societies the following resolution has been passed:—

That this conference of representatives of Friendly Societies and Trade Unions with sickness and medical benefits, having had under consideration the manifesto of the Belfast Medical Association, recently published, desire to express an emphatic condemnation of its terms, and regard its demands as extravagant and impracticable; that its suggestion of a £2 wage-limit would make it impossible to have any general contract with Friendly Societies; that the capitation fee of 8*s.* 6*d.* per annum without medicine or appliances, if insisted on, will only cause the Friendly Societies to drop medical benefits altogether, and seriously damage one of the most beneficent phases of their work. In our opinion the whole manifesto is intended to disturb, and if possible terminate, the friendly relationship which admittedly has hitherto existed between the Friendly Societies and their medical officers.

The "manifesto" of the members of the medical profession in Belfast, signed by 218 practitioners, was published in THE LANCET last week.

Sanatorium Benefits.

The question of how insured consumptives are to be provided with sanatorium benefits is still under discussion in Belfast. The Insurance Committee approached in the first place the public health committee of the city, who refused to do anything, raising a series of objections. Then the committee of management of the Forster Green Hospital for Consumption were consulted, but before giving any answer as to the terms on which they would admit insured persons with pulmonary tuberculosis, they asked their honorary medical staff to state what would be their position, and the matter is to come before the Local Medical Committee. It is a matter which will open up the whole question of the relationship of the medical profession who hold hospital posts to the insured under the changed circumstances brought about by the Act. The Insurance Committee have asked the board of management of the Royal Victoria Hospital for a conference to consider the terms on which they will treat cases of surgical tuberculosis, and they have also approached the Mater Infirmorum Hospital.

The Registration and Supervision of Midwives.

On Sept. 12th a large and representative deputation of Belfast medical men waited upon the public health committee of the city of Belfast in reference to the enforcement of the provisions of the Belfast Corporation Act, 1911, dealing with the certification, registration, and supervision of midwives practising in Belfast, and asked, as this was a matter of great importance not only to the public, but also to the members of the medical profession—who had never been consulted as a body in the matter—that in the framing of rules and regulations under the Act dealing with women who had already received certificates from recognised examining bodies as to their proper practical training, as well as with those who did not possess such certificates, the medical profession should be given an opportunity of stating their views, and also should have official representation on the committee appointed to deal with the matter. Sir John Byers and Dr. H. J. Ritchie having, on behalf of the deputation, addressed the committee, a long discussion followed, after which the chairman said the matters brought before them would be fully and carefully considered. The discussion brought out the fact that originally there were clauses in the Bill to appoint a Belfast Midwives Board on which the profession would have been fully represented; this was, however (in committee), deleted and other clauses substituted, under which the most varied authorities are given powers. Under these curious and apparently unforeseen conditions the profession in Belfast suggested to the corporation (through their local health committee) that some of their representatives should be associated with whatever sub-committee may be appointed to draw up regulations for the certification, registration, and supervision of midwives in Belfast.

Scarlet Fever in Belfast.

The epidemic of scarlet fever in Belfast has reached such an alarming extent that a notice has been sent to the members of the medical profession stating that, in making arrangements for dealing with cases, they are to recollect that Purdysburn Fever Hospital is full, and that no new patients can be admitted to that institution except as vacancies arise from the discharge of convalescents, and that 30 cases have been transferred to the workhouse fever hospital. The present scarlet fever epidemic in Belfast would support the view of those who contend that isolation of this zymotic is of little value—at least, from a public health point of view—in staying its prevalence. Beginning as an epidemic in the middle of October, 1909, it has continued ever since; in 1910 there were notified 734 cases; in 1911 the number rose to 766, and of these 1259 were removed to the two fever hospitals. During the beginning of the present summer the epidemic seemed to be lessening, but in July it broke out again, and now every bed in the municipal fever hospital for scarlet fever is full and patients are being sent in numbers to the union fever hospital. What is worse, the type of the disease is much more severe.

Sept. 17th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

A Visit of Austrian Medical Men to Paris.

FORTY-TWO Austrian medical men and students arrived in Paris at the beginning of September for a vacation course. They were met at the Gare de Lyon by M. Lamiraud, the inspector of the Academy, representing the Vice-Rector, M. Liard; by Professor Charles Diehl, of the Sorbonne; Professor Henri Lichtenberg, of the Faculty of Letters of the University of Paris; and by a delegation from the Bureau of the Association Générale des Étudiants. After welcoming them, Professor Lichtenberg presented a bronze medal of the University of Paris to Dr. Johannes Dengler, the director of the party, which then proceeded to the Sorbonne, where they were received by M. Lamiraud and M. Deretif, inspector of the Academy, with whom they visited the chapel, the faculty room (*salle de doctorat*), the laboratories, the amphitheatres, and the library. At midday a luncheon was served at the Sorbonne, at which Dr. Dengler returned thanks for the courtesies shown them. The party subsequently visited the schools and the scientific departments. They passed a week in Paris and visited Versailles and Fontainebleau.

Dissection Facilities.

A statistical report has been issued by the Administration of the Assistance Publique relating to the number of subjects available for the thousands of students in the dissecting-rooms of the Faculty of Medicine and the Amphitheatre of Anatomy at Clamart. During the nine months from Nov. 1st, 1910, to July 31st, 1911, 2204 subjects were supplied by 28 Paris hospitals, of which about two-thirds were sent to the Faculty of Medicine, and the remainder to Clamart. Of the three classes of subjects—children, men, and women—dissected during the scholastic year 1910–11, there were 980 men, 552 women, and 672 children. These 2204 cadavers did not, however, adequately supply the needs of the first and second year students. A scarcity of subjects seems to have been developing for some years past. From 1908 to 1911 the mean number of bodies supplied by the hospitals varied between 2141 and 2200, while in the preceding years it was over 2500, and in 1907 the number reached was 2682. This dearth is the more noticeable since the number of medical students is continually increasing. The greatest number of bodies provided for dissection are those of children under three years and of adults over 40. It is very rare to find on the dissecting table children between 3 and 14 years of age, or young women between 18 and 25. This is readily explicable on sentimental grounds; for the bodies of young women and children are almost always claimed by the relatives, while those of children under 3, coming as they do almost entirely from the pauper or the morally abandoned class, and those of elderly people whose nearest relatives are not to be found, are unclaimed.

Anti-cholera Vaccination.

M. Nicolle, M. Conor, and M. Conseil have been investigating at Tunis a method of inoculation with living microbes with a view to conferring immunity against cholera. The observations were made on 26 employees of the Institut Pasteur, of the hospitals, and of the Tunis Bureau of Hygiene. The inoculations were made at 5 P.M. Speaking generally, in about two hours the subjects experienced a feeling of indisposition resembling a malarial attack, which, save in two cases, disappeared by the following morning. About ten days later three of the vaccinated persons ingested living cholera bacilli without any troublesome consequences. Professor Roux, in presenting this communication to the Academy, said that while obviously no conclusions could be drawn from so limited a number of cases, the experiment constituted a new departure of the greatest interest.

The Competition for Hospital Externeships.

Replying to the protests of the student body in regard to the new regulations, to which I referred in my last letter, M. Mesureur, the Director of Public Assistance, states that the excitement is unjustifiable, seeing that the regulation to which it referred was made precisely on behalf of those students who, in consequence of the closing of the schools last January and February, have been unable to take their fourth inscription before the opening of the competition for externeships, as is required by the regulations of the Paris hospitals. The first year's students not having been able, in consequence of the interruption of the course, to take their fourth inscription this year in time for the opening of the competition on Sept. 16th, naturally could not be admitted to the competition; but the Minister of Instruction has had the matter under consideration since February, and has asked the Assistance Publique to take such steps as may be necessary to relieve the situation. After consultation with the vice-rector of the Academy of Paris and the *doyen* of the Faculty of Medicine, the administration proposed the modifications which have since been carried and have been communicated to all concerned.

An Unusual Accident.

An explosion of oxycyanide of mercury has taken place at the Hôpital Tenon. The superintendent of the pharmacy of this institution had in a stoneware vessel about 200 grammes of this salt which had lost some of its properties. To destroy it he conceived the idea of burning it in the furnace. Holding the vessel in both hands, he threw the salt little by little into the fire, when a violent explosion took place, blowing the vessel into fragments and filling the atmosphere with mercurial vapours. These vapours condensing rendered the air of the room completely opaque, so that objects could not be seen at a greater distance than 50 centimetres. The superintendent was slightly burned and received deep wounds in the face and hands from the fragments of the vessel. The accident might, indeed, have proved far more serious, for one of the fragments was found buried to a depth of 3 millimetres in a tin vessel situated 3 metres from the furnace, while other fragments hurled against the wall and ceiling made holes therein 2 centimetres deep. The explanation given is that the particles of the salt in contact with the furnace detonated, giving rise to a flame which, getting nearer and nearer to the vessel, ultimately caused the salt therein to explode.

Sept. 17th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Pituitrin (Extract of the Hypophysis) as an Ecbolic.

Dr. Hoffbauer, of Königsberg, has given an account of the action of extract of the hypophysis as an ecbolic. He states that this substance was administered either by subcutaneous or by intravenous injection, the dose being 1 gramme in the former case and 0·5 gramme in the latter. The administration of anæsthetics did not hinder the action of the extract. The type of labour produced by it was similar to the normal type, but the intervals between the pains were shortened. The intensity of the pains was especially influenced in the second stage of the period of dilatation and in the expulsion period. The effect lasted for about three-quarters of an hour, after which a second injection might be given if required. Pituitrin was therefore indicated in every form of primary or secondary insufficiency of uterine action, in placenta prævia, in face and breech presentation, and in pelvic contraction. It was also a useful remedy against hæmorrhage during Cæsarean section. Toxic symptoms were never observed even when pituitrine was administered in women suffering from Bright's disease or from Graves's disease, neither was there any injurious action on the fœtus. For the after-birth period Dr. Hoffbauer recommended the administration of secacornin in preference to pituitrine. He came to the general conclusion that the administration of pituitrin shortened the duration of child-birth, so that inconveniences connected with tedious labour became less frequent and operative procedures might sometimes be avoided. The article will be found in the *Münchener Medicinische Wochenschrift*.

Exchange of Anatomical Preparations.

In connexion with the German Pathological Society an Association for the Exchange of Anatomical Preparations has been formed, the membership including almost all the German and a number of foreign pathologists. The object of the association is to introduce a system by which anatomical preparations may be exchanged between the members, as is already done by the anatomical museums in the United States of America. The office of the association is in Frankfort, where also original microscopical preparations sent by the authors of histological publications will be collected. In this way the control of histological work by others than the author will become possible. The committee of the association includes Professor Fränkel, of Hamburg, Professor Paltauf, of Vienna, Professor Schmidt, of Marburg, and Professor Fischer, of Frankfort, who acts as honorary secretary.

Diphtheria Bacilli in the Urine.

Professor Conradi and Dr. Bierast, of the Hygienic Institute of Halle, have found the bacillus of diphtheria in the urine of 54 out of 155 persons suffering from that disease. Of these patients, 31 had been ill for less than a week, 10 were in the second week, 3 were in the third week, and 2 were in the fourth week, whilst in the remainder no exact information could be obtained. In one case the bacilli were present even after nine weeks had elapsed since the beginning of the attack. Bacilli were found in normal urine as well as in cases of albuminuria; the discharge of diphtheria bacilli was therefore not connected with disorder of the kidney. The number of germs in the urine was rather small compared with the enormous quantity of them in the mouth and the respiratory tract. Dissemination of diphtheria by the urine was certainly a rather rare event, although germs might by carelessness be brought into contact with milk and so spread the disease. Similar occurrences have been recorded in some epidemics of enteric fever, a patient having been known to pass urine into a pail used for milking. The authors of the communication further drew attention to the fact that the skin of the genito-anal region was sometimes liable to a diphtheritic affection, and that this might be caused by infection from drops of urine. The same was possibly the case in pseudo-membranous colpitis and in gangrenous vulvitis, where typical diphtheria bacilli have been found. They recommended that disinfection of the urine of diphtheria patients should be continued until the diphtheria bacilli disappeared.

Sept. 17th.

Obituary.

JOHN EBENEZER RANKING, M.A., M.D. OXON., F.R.C.P. LOND.,

SENIOR PHYSICIAN TO THE TUNBRIDGE WELLS GENERAL HOSPITAL.

By the death of Dr. J. E. Ranking, which occurred at Bexhill on Sept. 11th as the result of a motor-car accident, the medical profession has lost a valued member and the South of England—Kent and Sussex in particular—a most skilful physician. Dr. Ranking, who had been a resident of Tunbridge Wells for a great many years, had motored to Bexhill on a professional visit, accompanied by his two daughters. At the foot of a hill where the road slopes the car skidded twice and turned over on its side. The occupants of the car sustained serious injuries, and it was soon ascertained that Dr. Ranking's condition was hopeless. He was unconscious for a time, but regaining consciousness he discussed the treatment of his case with

the medical men attending him, but said nothing about the accident. The end, however, came in a few hours. At the inquest Mr. Henry Cameron Taylor, who gave evidence, paid a tribute to Dr. Ranking's courage on his death-bed. He was a brave man in his life and in his death.

The news of Dr. Ranking's death came as a great shock at Tunbridge Wells, where he was so well known. Since 1880 he had been a member of the local General Hospital staff, and at the time of his death was senior physician. Dr. Ranking was 62 years of age. From Oxford he proceeded to St. Bartholomew's Hospital, where he won the Treasurer's and Foster prizes. He took the M.R.C.S. Eng. and L.S.A. diplomas in 1874. Two years later he took the M.B. degree and that of M.A. at the University of Oxford, proceeding to the M.D. degree in 1879. He was elected a Fellow of the Royal College of Physicians of London in 1892, having been admitted to the Membership in 1881. He was a Fellow of the Medical Society of London and of the Obstetrical Society of Edinburgh. His pleasant, kindly disposition brought him many friends, and when he settled at Tunbridge Wells he soon gained an extensive practice. As a consulting physician his opinion was highly valued by a large number of practitioners in Kent and Sussex. He was president of the South-Eastern branch of the British Medical Association in 1898–99.

Dr. Ranking's two sons are members of the medical profession.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. August Cramer, professor of psychiatry and neurology in the University of Göttingen. He was the son of an eminent alienist physician, Dr. Heinrich Cramer, professor of mental diseases in the University of Marburg. His first post was that of assistant in the Freiburg psychiatric clinic, and he has been ordinary professor in Göttingen since 1900. On Professor Ziehen's retirement he was offered the chair in Berlin, but decided to remain in Göttingen. His published works and papers on the subjects coming under his specialty are very numerous, and he enjoyed the very highest reputation as a neurologist and alienist physician.—Dr. James E. Newcomb, professor of laryngology in Cornell University Medical College, New York.—Dr. M. Glogowski, of Görlitz, sanitary councillor.

Medical News.

FOREIGN UNIVERSITY INTELLIGENCE.—*Bahia:* Dr. P. L. Celestino, Extraordinary Professor of Physiological Chemistry, has been appointed to the chair of Physiology.—*Berlin:* Dr. Friedrich Meyer, *privat-docent* of Medicine, has been granted the title of Professor.—*Budapest:* Dr. Josef Gussmann has been recognised as *privat-docent* of Dermatology, and Dr. Julius Elischer as *privat-docent* of Radiology.—*Clausenburg (Kolozsvar):* Dr. Hevesi, *privat-docent* of Orthopædic Surgery, has been granted the title of Professor.—*Cracow:* Dr. Stanislaus Ciechanowski, Extraordinary Professor of Pathological Anatomy, has been granted the title of Ordinary Professor.—*Florence:* Dr. Federigo Mazzone, of Naples, has been recognised as *privat-docent* of Surgical Anatomy and Operative Medicine.—*Freiburg:* Dr. H. C. Franz Keibel, Extraordinary Professor of Anatomy, has been promoted to be Honorary Ordinary Professor; Dr. Herrenknecht has been appointed Extraordinary Professor of Odontology; and Dr. Morawitz Extraordinary Professor of Medicine.—*Genoa:* Dr. Vito De Blasi has been recognised as *privat-docent* of Midwifery and Gynæcology.—*Göttingen:* Dr. Otto Creite, Oberarzt of the University Surgical Clinic, has been granted the title of Professor.—*Greifswald:* Dr. Adolf Hoffmann, Oberarzt of the University Surgical Clinic, has been granted the title of Professor.—*Harvard:* Dr. David L. Edsall, Professor in Washington University, St. Louis, has been appointed to the chair of Clinical Medicine, in succession to Dr. F. Cheever Shattuck, resigned.—*Heidelberg:* Dr. Franz Fischler, *privat-docent* of Medicine, has been granted the title of Extraordinary Professor.—*Jurieff (Dorpat):* Dr. Adolfi, *privat-docent*, has been appointed to the chair of Clinical Medicine.—*Kharkoff:* Dr. A. M. Chereffkoff, Extraordinary Professor of Pædiatry, has been promoted to be Ordinary Professor.—*Königsberg:* Dr. K. H. Kisskalt, of Berlin, has been appointed to the chair of Hygiene, in succession to Dr. Hahn. Dr. Alfred Schittenhelm, Extraordinary Professor in Erlangen, has been offered the chair of Medicine, in succession to Dr. Lichtheim. Dr. F. W. Proell has been recognised as *privat-docent* of Odontology.—*Leipsic:* Dr. A. Knick has been recognised as *privat-docent* of Otology and Laryngology.—*Marburg:* Dr. H. Goppert, of Heidelberg, has been offered the post of Prosector to the Anatomical Institution in succession to the late Dr. Disse.—*Munich:* Dr. Heilner, *privat-docent* of Physiology, Dr. W. Lohman, *privat-docent* of Ophthalmology, and Dr. Brasch, *privat-docent* of Medicine, have been granted the title of Extraordinary Professor. Dr. Hess, professor in Würzburg, has been appointed to the chair of Ophthalmology in succession to the late Dr. Eversbusch.—*Padua:* Dr. Arnaldo Maggiora, of Modena, has been appointed to the chair of Experimental Hygiene. Dr. Schiavoni has been recognised as *privat-docent* of External Pathology.—*Parma:* Dr. Augusto Ott, of Sassari, has been recognised as *privat-docent* of Medical Pathology.—*Palermo:* Dr. M. Cipolla, of Naples, has been recognised as *privat-docent* of Dermatology.—*Prague (Bohemian University):* Dr. J. Hnátek, Extraordinary Professor of Medicine, has been promoted to be Ordinary Professor, and Dr. Franz Procházda, *privat-docent* of Medicine, has been granted the title of Extraordinary Professor.—*Prague (German University):* Dr. F. Lucksh has been recognised as *privat-docent* of Pathological Anatomy.—*Rome:* Dr. A. Maurizi has been recognised as *privat-docent* of Ophthalmology.—*Strasburg:* Dr. H. Vogt, *privat-docent* of Pædiatry, has been granted the title of Professor.—*Tübingen:* Dr. Hirsch, of Göttingen, having declined the post of Director of the Medical Clinic, Dr. Ottfried Müller, of the Policlinic, has been appointed to it in succession to Dr. Romberg.—*Vienna:* Dr. Karl Meixner has been recognised as *privat-docent* of Forensic Medicine, Dr. Viktor Mucha as *privat-docent* of Dermatology, and Dr. Josef Berze as *privat-docent* of Psychiatry.—*Würzburg:* Dr. W. Lubosch, the newly-appointed Prosector of the Anatomical Institute, has been granted the title of Extraordinary Professor. The same title has been conferred upon Dr. Ackermann, *privat-docent* of Physiology.

THE ROYAL SANITARY INSTITUTE.—The fifty-fourth course of lectures and demonstrations for sanitary officers commenced on Monday, Sept. 16th, and will be continued on successive Mondays, Wednesdays, and Fridays (sometimes with an intervening Tuesday) till Nov. 27th. The course is divided into two parts. The first part consists of four lectures on elementary physics and chemistry in relation to water, soil, air, ventilation, and meteorology, and 21 lectures, comprising public health statutes, the practical duties of a sanitary inspector, municipal hygiene, and building construction. The second part consists of seven lectures on meat and food inspection. The lecture hour is 7 P.M. Among the lecturers are Dr. E. Petronell Manby, Dr. Charles Porter, and Dr. J. Priestley. The fee for Part I. is £2 12*s.* 6*d.*, and for Part II. £1 1*s.*, or for the complete course £3 3*s.* The demonstrations to be given in connexion with this course will take place at various municipal works, public manufactories, and at the Metropolitan Cattle Market. During October and December, commencing on Friday, Oct. 4th, at 7 P.M., the twenty-first course of practical training for meat inspectors will be given. Demonstrations at the Cattle Market and at Messrs. Harrison, Barber and Co.'s knackers' yard will be held in connexion with the course. The fee for a two months' course is £3 3*s.*, or for a complete course, which includes the second part of the course for sanitary officers, £3 13*s.* 6*d.* Arrangements have also been made for a demonstration on fish inspection on Nov. 7th. The lectures to assist school teachers and other students entering for the examinations in school hygiene and for women health visitors and school nurses will commence on Monday, Sept. 30th, at 7 P.M. The fee for the course is £1 1*s.*, and the lecturers will include Dr. K. Marion Hunter-Vaughan, Dr. A. B. Kingsford, Mr. E. H. T. Nash, and Dr. Eric L. Pritchard. The provincial sessional meeting of the institute will be held at Lewes on Oct. 4th and 5th. On the first day, at 7 P.M., discussions will take place on the Control of Tuberculosis as Practised in the County Town

of Lewes, to be opened by Dr. J. R. Steinhaeuser, and on a description of the new Sewage Scheme for Lewes, to be opened by Mr. D. Roberts, the borough surveyor. On the second day visits will be made to the Phœnix Ironworks, to the Lewes Portland Cement and Lime Works, and to local hospitals and municipal works. Full particulars of the courses above referred to and of the sessional meeting can be obtained from the secretary of the institute, 90, Buckingham Palace-road, London, S.W. Those wishing to be present at the luncheon in connexion with the sessional meeting should communicate with the secretary, or with Dr. J. R. Steinhaeuser, at the Town-hall, Lewes, not later than Sept. 27th.

THE inaugural lecture at the Medical School of the Royal Hospital for Diseases of the Chest, City-road, will be delivered on Thursday, Oct. 17th, at 5 P.M., by Professor Dr. Nietner, of Berlin, general secretary of the German Central Committee for the Prevention of Tuberculosis. Subject, "The Modern Combat against Tuberculosis amongst Children."

THE LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN.—At the opening of the winter session, which will take place on Tuesday, Oct. 1st, at 4 P.M., at 8, Hunter-street, Brunswick-square, W.C., the introductory address will be given by Dr. Jane Walker, on the subject of "Common Sense." Dr. Elizabeth Garrett Anderson, president of the school, will take the chair.

DONATIONS AND BEQUESTS.—Mr. John Howard, of Brighton, has given £40,000 to that town for philanthropic purposes, and it is proposed to build a convalescent home to accommodate poor patients as well as those able to pay a moderate fee.—A donation of £50 has been received by the dean of the medical school of the Royal Hospital for Diseases of the Chest, City-road, from Dr. Horace Dobell, consulting physician to the hospital, towards the equipment and research fund.—It is announced that Jervis-street Hospital, Dublin, has been bequeathed from an unexpected source a legacy amounting to nearly £40,000. For some years past its finances have been strained to carry on its work, and this windfall will provide for several very necessary improvements.

LITERARY INTELLIGENCE.—The Cambridge University Press announces that eight new volumes in the "Cambridge Manuals of Science and Literature" will be published on Oct. 1st. The series will then comprise 50 titles. The new volumes are as follows:—"China and the Manchus," by Professor H. A. Giles, LL.D.; "The Civilisation of Ancient Mexico," by Lewis Spence; "Brasses," by J. S. M. Ward, B.A., F.R.H.S.; "House Flies and How they Spread Disease," by C. G. Hewitt; "The Individual in the Animal Kingdom," by Julian S. Huxley, B.A.; "The Work of Rain and Rivers," by T. G. Bonney, Sc.D.; "The Psychology of Insanity," by Bernard Hart, M.D.; and "Brewing," by A. Chaston Chapman, F.I.C. The volume on house flies will be of general interest, for the public is beginning to learn, in the author's words, "that the house fly is something more than an irritant to elderly gentlemen and an object of interest to babies." It is now generally known that flies constitute a serious menace to the health of the community. The other volumes will appeal to busy professional men, because in accordance with the general scheme of these manuals the authors have kept in mind the fact that technicalities must be avoided as far as possible in introducing scientific subjects, while maintaining a high level of scholarship.—Mr. Heinemann will publish quite shortly a volume by Dr. Chalmers Mitchell on "The Childhood of Animals."

BOOKS, ETC., RECEIVED.

ARNOLD, EDWARD, London.

An Introduction to the Study of the Protozoa, with Special Reference to the Parasitic Forms. By E. A. Minchin, M.A., Ph.D., F.R.S., Professor of Protozoology in the University of London. Price 21s. net.

BAILLIÈRE, TINDALL AND COX, London.

Prescribers' Formulary and Index of Pharmacy. By Thomas Pugh Beddoes, M.B., B.C.Camb., F.R.C.S. Eng., Surgeon to the London Skin Hospital; Surgeon to the Westminster General Dispensary. Price 2s. 6d. net.

CRYSTAL PRESS, LIMITED, 56, Morgate-street, London, E.C., and 36-39, Maiden-lane, London, W.C.

Life Understood from a Scientific and Religious Point of View. And the Practical Method of Destroying Sin, Disease, and Death. By F. L. Rawson, Member of the Institution of Electrical Engineers and Associate Member of the Institution of Civil Engineers. Price 7s. 6d.

DARAGON, H., 96-98, Rue Blanche, Paris.

Encyclopédie de l'Amour. Publiée par une Société d'Historiens, de Folkloristes, d'Ethnographes, d'Explorateurs, d'Hommes de lettres et de Poètes, sous la Direction de Marius Boisson. Deuxième Volume. Espagne. Par C. F. Perez. Price Fr. 6.

DULAU AND CO., LIMITED, 37, Soho-square, London, W.

University of London. Galton Laboratory for National Eugenics. Eugenics Laboratory Lecture Series. IX. Darwinism, Medical Progress and Eugenics. The Cavendish Lecture, 1912. An Address to the Medical Profession. By Karl Pearson, F.R.S., Galton Professor of Eugenics, University of London. Price 1s. net.

Department of Applied Statistics, University College, London. Questions of the Day and of the Fray. No. VI. Eugenics and Public Health. (A Lecture Delivered at the York Congress of the Royal Sanitary Institute, July 30th, 1912.) By Karl Pearson, F.R.S., Galton Professor of Eugenics. Price 1s. net.

ENGELMANN, WILHELM, VERLAG VON, Leipzig.

Das Problem der Vererbung "Erworbener Eigenschaften." Von Richard Semon. Price, paper, M.3.20.

ENKE, FERDINAND, VERLAG VON, Stuttgart. BAUERMEISTER, F., 19, West Regent-street, Glasgow.

Die Röntgen-Literatur. II. Teil. Sachregister. Im Auftrag der Deutschen Röntgengesellschaft und unter Mitarbeit des Literatur-Sonder-Ausschusses. Herausgegeben von Prof. Dr. Hermann Gocht in Halle a.S. Price M.15.

FISCHER, GUSTAV, Jena.

Handbuch der Pathogenen Mikroorganismen. Herausgegeben von Dr. W. Kolle und Dr. A von Wassermann. Zweite vermehrte Auflage. Dreizehnte Lieferung (Bd. I., Bogen 46-55). Vierzehnte und fünfzehnte Lieferung (Bd. V., Seite 241-474). Sechzehnte bis neunzehnte Lieferung (Bd. VII., Seite 1-466). Zwanzigste Lieferung (Bd. IV., Seite 355-512). Preis jeder Lieferung, M.5.

Aus dem Städtischen Hygienischen Institut zu Frankfurt a.M. Direktor, Professor Dr. M. Neisser. Versuche zur Immunisierung gegen Trypanosomen. Von Hugo Braun und Ernst Teichmann. M.3.50.

Die Morphologie der Missbildungen des Menschen und der Tiere. Ein Hand- und Lehrbuch für Morphologen, Physiologen, Praktische Aertze und Studierende. Unter Mitwirkung zahlreicher Fachgenossen. Herausgegeben von Dr. Ernst Schwalbe, O. O. Professor d. Allgemeinen Pathologie und Pathlog. Anatomie an der Universität Rostock. III. Teil. Die Einzelmissbildungen. VII. Lieferung. 2 Abteilung. 7. Kapitel. Die Missbildungen der Haut. Von Prof. Dr. Bettmann, Heidelberg. Price M.4.

III. Teil. Die Einzelmissbildungen. VIII. Lieferung. 2 Abteilung. 8. Kapitel. Die Missbildungen der Atmungsorgane. Von Dr. P. Schneider, Heidelberg. Price M.3.60.

FROWDE, HENRY, AND HODDER AND STOUGHTON, London.

Oxford Medical Publications. The Surgery of the Skull and Brain. By L. Bathe Rawling, F.R.C.S., Surgeon, with Charge of Outpatients, Senior Demonstrator of Practical Surgery, Demonstrator of Operative Surgery, St. Bartholomew's Hospital, late Hunterian Professor, &c. Price 25s. net.

GILI, JUAN, Herederos de, Cortes, 581, Barcelona, Spain.

Dr. R. Plá y Armengol. Diagnóstico Precoz de la Tuberculósis Pulmonar. Price 6 pesetas.

HIRSCHWALD, AUGUST, Berlin.

Der gerichtlich-medizinische Nachweis der Wichtigsten Gifte. Von Prof. Dr. med. Hermann Hildebrandt, Privatdozent für Pharmakologie und gerichtliche Medizin an der Universität Halle a.S. Price M.2.

IMPRIMERIE DE L'INSTITUT FRANÇAIS D'ARCHÉOLOGIE ORIENTALE, Le Caire. LEROUX, ERNEST, 28, Rue Bonaparte, Paris. QUARITCH, BERNARD, 11, Grafton-street, London, W. HIERSEMANN, KARL, 29, Königsstrasse, Leipzig.

Service des Antiquités de l'Égypte. Catalogue Général des Antiquités Égyptiennes du Musée du Caire. Nos. 61051-61100. The Royal Mummies. By G. Elliot Smith, F.R.S. Price P.T.300 (77 francs).

KIMPTON, HENRY, London. STENHOUSE, ALEXANDER, Glasgow.

A Text-book of Practical Therapeutics, with Especial Reference to the Application of Remedial Measures to Disease and their Employment upon a Rational Basis. By Hobart Amory Hare, M.D., B.Sc., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Fourteenth edition, enlarged, thoroughly revised, and largely rewritten. Price 21s. net.

Laboratory Methods, with Special Reference to the Needs of the General Practitioner. By B. G. R. Williams, M.D., Member of Illinois State Medical Society, American Medical Association, &c., assisted by E. G. C. Williams, M.D., formerly Pathologist of Northern Michigan Hospital for the Insane, Traverse City, Michigan. With an Introduction by Victor C. Vaughan, M.D., LL.D., Professor of Hygiene and Physiological Chemistry and Dean of the Department of Medicine and Surgery, University of Michigan, Ann Arbor, Michigan. Price 10s. net.

Pellagra: History, Distribution, Diagnosis, Prognosis, Treatment, Etiology. By Stewart R. Roberts, S.M., M.D., Associate Professor of the Principles and Practice of Medicine, Atlanta College of Physicians and Surgeons, Atlanta, Georgia. Price 12s. net.

MACMILLAN AND CO., LIMITED, London.

A Text-book of Pathology. For Students of Medicine. By J. George Adami, M.A., M.D., F.R.S., Strathcona Professor of Pathology, McGill University, and Advisory Pathologist to the Montreal General and the Royal Victoria Hospitals, Montreal, Canada, and John McCrae, M.D., M.R.C.P. Lond., Lecturer in Pathology and Clinical Medicine, McGill University, Montreal. Price 25s. net.

MARHOLD, CARL, Halle a.S.

Sammlung Jadassohn. I. Band, Heft 5. Die Behandlung der Krankheiten der behaarten Kopfhaut. Von K. Herxheimer und K. Altmann, Frankfurt a.M. Price M.1.50.

METHUEN AND CO., LIMITED, London.

Instinct and Experience. By C. Lloyd Morgan, D.Sc., LL.D., F.R.S., Professor in the University of Bristol. Price 5s. net.

MILNER AND COMPANY, Raglan Works, Halifax.

Dactylography, or the Study of Finger-Prints. By Henry Faulds L.R.F.P. & S., F.R.Anthrop.Inst., M.R.Archæol.Inst., M.Sociol. Soc. Price 1s. net

Medical and Surgical Science, its Conception and Progress. By S. Hillier, M.D., Author of "Popular Drugs: Their Use and Abuse." Price 1s. net.

RIVERDALE PRESS, Brookline, Massachusetts.

Transactions of The American Urological Association. Eleventh Annual Meeting at New York City, April 2nd, 3rd, and 4th, 1912. Edited by Charles Greene Cumston, M.D. (Secretary: H. A. Fowler, The Cumberland, Washington, D.C.) Price not stated.

SAUNDERS (W. B.) COMPANY, Philadelphia and London.

First-Year Nursing. A Text-book for Pupils during Their First Year of Hospital Work. By Minnie Goodnow, R.N., Former Superintendent of the Woman's Hospital, Denver, Directress of Nurses of Milwaukee County Hospital, Superintendent of Bronson Hospital, Kalamazoo. Price, cloth, 6s. 6d. net.

SOCIÉTÉ GÉNÉRALE D'IMPRIMERIE ET D'ÉDITION LEVÉ, 71, Rue de Rennes, Paris.

Contribution à l'Étude du Traitement du Cancer du Testicule. Par le Docteur C. Osorio Mascarenhas, Ancien Interne des Hôpitaux de Paris. Price not stated.

URBAN UND SCHWARZENBERG, Berlin und Wien.

Ophthalmoskopische Diagnostik an der Hand typischer Augenhintergrundsbilder. Mit besonderer Berücksichtigung der für die Allgemein-Medizin wichtigen Fälle. Für Aerzte und Studierende. Von Priv.-Doz. Dr. C. Adam, Assistent an der Kgl. Univ.-Augenklinik, Berlin. Price, paper, M.21; bound, M.24.

WILEY, JOHN, AND SONS, New York. CHAPMAN AND HALL, LIMITED, London.

Enzymes. By Otto Cohnheim, A.O. Professor of Physiology, Heidelberg. Six Lectures delivered under the Herter Lectureship Foundation at the University and Bellevue Hospital Medical College. First edition. First thousand. Price 6s. 6d. net.

A Laboratory Manual of Inorganic Chemistry. By John B. Ekeley, Ph.D., Sc D., Professor of Chemistry, University of Colorado. To accompany A Text-book of Inorganic Chemistry. By A. F. Holleman, Ph.D., F.R.A. Amst., Professor Ordinarius of Chemistry, University of Amsterdam. First edition. First thousand. Price 4s 6d. net.

Electrical Injuries, Their Causation, Prevention, and Treatment. Designed for the Use of Practical Electrical Men. By Charles A. Lauffer, A.M., M.D., Medical Director, Relief Department, Westinghouse Electric Manufacturing Co., East Pittsburgh, Pa. First edition. First thousand. Price 2s. net.

WRIGHT, JOHN, AND SONS, LIMITED, Bristol. SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., London.

An Historical Outline of Ambulance from the Earliest Times. By Charles H. Miles, L.R.C.P. Lond. Price 3d. net.

Manual for Women's Voluntary Aid Detachments. By P. C. Gabbett, M.R.C.S., Lieut.-Col., I.M.S. (retired). Price 1s. net.

Small-pox and its Diffusion. By Alexander Collie, M.D. Aberd., M.R.C.P. Lond., late Pathological Assistant and Resident Surgeon, Royal Infirmary, Aberdeen; Clinical Assistant, Sick Children's Hospital, Great Ormond-street. Price 2s. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

EDMOND, G. M., M.D., C.M. Aberd., has been appointed Consulting Surgeon to the Aberdeen Royal Infirmary.

FALCONER, A. W., M.D., Ch.B. Aberd., has been appointed Assistant Physician to the Aberdeen Royal Infirmary.

FERGUSON, J. BELL, M.B., Ch.B. Edin., D.P.H. Manch., has been appointed Chief Tuberculosis Officer for the City and County of York.

HEY, W. H., F.R.C.S. Eng., has been appointed Honorary Surgeon to Ancoats Hospital, Manchester.

MORLEY, JOHN, Ch.M. Manch., F.R.C.S. Eng., has been appointed Honorary Surgeon to Ancoats Hospital, Manchester.

PATRICK, J. KING, M.B., Ch.B., B.Sc. Glasg., D.P.H. Dub., has been appointed Assistant Medical Officer of Health and Medical Officer in Charge of Tuberculosis Dispensary in the County Borough of Leicester.

PIRIE, W. R., M.B. Aberd., has been appointed Honorary Physician and Lecturer on Clinical Medicine in the Aberdeen Royal Infirmary.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ALBERT DOCK HOSPITAL, Connaught-road, E.—Senior House Surgeon. Salary £100 per annum, with board, residence, and washing. Also House Surgeon. Salary £50 per annum, with board, residence, and washing. Both for six months.

BANBURY, HORTON INFIRMARY.—House Surgeon. Salary £80 per annum, with board and residence.

BARNSLEY, BECKETT HOSPITAL AND DISPENSARY.—Second House Surgeon, unmarried. Salary £100 per annum, with apartments, board, and laundry.

BARROW-IN-FURNESS, NORTH LONSDALE HOSPITAL.—House Surgeon. Salary £100 per annum, with board and attendance.

BETHLEM ROYAL HOSPITAL, Lambeth-road, S.E.—Pathologist and Registrar. Salary £150 per annum. Also Honorary Consulting Surgeon, Honorary Consulting Aurist and Laryngologist, Honorary Ophthalmologist, Honorary Anæsthetist, and Honorary Gynæcologist.

BIRKENHEAD BOROUGH HOSPITAL.—Senior House Surgeon. Salary £100 per annum.

BIRKENHEAD COUNTY BOROUGH MUNICIPAL TUBERCULOSIS DISPENSARY.—Tuberculosis Medical Officer. Salary £300 per annum.

BIRMINGHAM, YARDLEY-ROAD SANATORIUM.—Assistant Medical Officer. Salary £250 per annum, with board and residence.

BOLINGBROKE HOSPITAL, Wandsworth Common, S.W.—Surgeon required.

BOLTON INFIRMARY AND DISPENSARY.—Senior Assistant House Surgeon. Salary £100 per annum, with board, apartments, and attendance.

BRADFORD CHILDREN'S HOSPITAL.—House Surgeon. Salary £100 per annum.

BRITISH LYING-IN HOSPITAL, Endell-street, W.C.—Resident Medical Officer. Salary at rate of £50 per annum, with board, lodging, and washing.

BUENOS AYRES, BRITISH HOSPITAL.—Assistant Resident Medical Officer, unmarried. Salary £200 per annum, with board, lodging, &c.

CARSHALTON, SURREY, QUEEN MARY'S HOSPITAL FOR CHILDREN.—Senior Assistant Medical Officer. Salary £250 per annum, with board, lodging, and washing.

CENTRAL FOUNDATION SCHOOLS OF LONDON (BOYS' SCHOOL), Cowper-street, City-road, E.C.—Medical Officer. Salary £50 per annum.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—House Physician. Salary £80 per annum, with board, apartments, and laundry.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Junior House Surgeon. Salary £90 per annum, with rooms, board, washing, and attendance.

DEWSBURY AND DISTRICT GENERAL INFIRMARY.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.

DUBLIN, ROYAL VICTORIA EYE AND EAR HOSPITAL.—Two House Surgeons. Salary £40 per annum, and board.

DUDLEY, GUEST HOSPITAL.—Assistant House Surgeon for six months. Salary £80 per annum, with residence, board, and washing. Also Senior Resident Medical Officer. Salary 100 guineas per annum, with board, residence, attendance, and washing.

DUNDEE, SIDLAW SANATORIUM.—Resident Medical Officer. Salary £100 per annum.

EDMONTON UNION INFIRMARY, 77, Bridport-road, Upper Edmonton.—Second Assistant Medical Officer, unmarried. Salary £120 per annum, with residential allowances.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.—Ten Clinical Assistants in Out-patients' Department (Medical, Surgical, Ophthalmic, Aural, Dermatological, and Dental).

EXETER, ROYAL DEVON AND EXETER HOSPITAL.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board, apartments, and washing.

FEDERATED MALAY STATES MATERNITY HOSPITALS.—One or more Lady Doctors. Salary £300 per annum, and free quarters.

FOLKESTONE, ROYAL VICTORIA HOSPITAL.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.

GREENWICH, DREADNOUGHT HOSPITAL.—Two House Physicians and Two House Surgeons, all for six months. Salary £50 per annum respectively, with board, residence, and washing.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL.—Gynæcologist and Surgeon to Out-patients. Also Casualty Officer for new Out-patients' Department, Camden Town, N.W. Salary £140 per annum, with board, residence, and laundry. Also Assistant Casualty Officer for six months. Salary at rate of £60 per annum, with board, residence, and laundry.

HASTINGS, EAST SUSSEX HOSPITAL.—Assistant House Surgeon. Salary at rate of £70 per annum, with residence, board, and washing.

HEMEL HEMPSTEAD, HERTS, WEST HERTS HOSPITAL.—Resident Medical Officer. Salary £100 per annum, with rooms, board, and washing.

HOLBORN UNION INFIRMARY, Archway-road, Upper Holloway, N.—Second Assistant Medical Officer. Salary £100 per annum, with board, apartments, and washing.

HULL ROYAL INFIRMARY.—Senior House Surgeon, unmarried. Salary £150 per annum, with board and apartments. Also House Physician, unmarried. Salary £100 per annum, with board and apartments.

HUNTINGDON COUNTY HOSPITAL.—Resident Medical Officer. Salary at rate of £100 per annum, with board and residence.

JOHANNESBURG HOSPITAL.—Resident X Ray Medical Officer. Salary £500 per annum, with board and lodging.

KIDDERMINSTER INFIRMARY AND CHILDREN'S HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum and board.

KING EDWARD VII. SANATORIUM, Midhurst, Sussex.—Junior Assistant Medical Officer, unmarried. Salary £150 per annum, with board, lodging, and attendance.

LARBERT, STIRLING DISTRICT ASYLUM.—Junior Assistant Medical Officer. Salary £140 per annum, with board, lodging, and laundry.

LEICESTER BOROUGH TUBERCULOSIS DISPENSARY.—Assistant Medical Officer. Salary £250 per annum.

LEICESTER ROYAL INFIRMARY.—House Physician. Salary at rate of £100 per annum, with board, lodging, and washing.

LONDON MEDICAL MISSION, Endell-street, W.C.—Resident Medical Officer.

LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W.—Anæsthetist. Salary at rate of 20 guineas per annum.

MAIDSTONE, KENT COUNTY ASYLUM.—Fourth Assistant Medical Officer, unmarried. Salary £200 per annum, with quarters, attendance, washing, &c.

METROPOLITAN ASYLUMS BOARD INFECTIOUS HOSPITAL SERVICE.—Assistant Medical Officers, unmarried. Salary £180 per annum, with board, lodging, and washing.

MIDDLESBROUGH, NORTH RIDING INFIRMARY.—Senior House Surgeon. Salary £100 per annum, with residence, board, washing, and attendance.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.—Resident Medical Officer. Salary £100 per annum, with board and residence.

NEWCASTLE-ON-TYNE HOSPITAL FOR DISEASES OF THE SKIN.—Two Honorary Assistant Medical Officers.

NOTTINGHAM GENERAL HOSPITAL.—Assistant House Surgeon. Salary £100 per annum, with board, lodging, and laundry.

POWICK, WORCESTER, COUNTY AND CITY ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £160 per annum, with board, apartments, washing, and attendance.

PRESTWICH UNION, BOOTH HALL INFIRMARY, Charlestown-road, Blackley, and WORKHOUSE, Delaunays-road, Crumpsall.—Medical Officer and Visiting Physician. Salary £160 per annum. Also Second Assistant Medical Officer. Salary £100 per annum, with apartments, &c.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL.—Pathologist and Registrar. Salary at rate of £80 per annum, and lunch.

ROYAL FREE HOSPITAL, Gray's Inn-road, W.C.—Male and Female House Physicians and House Surgeons for six months. Board, lodging, and washing provided. Also Female Assistant Anæsthetist. Salary £50 per annum.

ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Senior House Surgeon. Salary at rate of £100 per annum, with board and residence.

ROYAL NATIONAL ORTHOPÆDIC HOSPITAL.—Resident House Surgeon, unmarried, for six months. Salary £100 per annum, with board, residence, and washing.

ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—House Physician. Salary £100 per annum, with rooms, board, and washing.

SHEFFIELD, JESSOP HOSPITAL FOR WOMEN.—House Surgeon, unmarried. Salary £30 per annum, with board, residence, and laundry.

SOUTHWARK UNION INFIRMARY, East Dulwich-grove, S.E.—Third Assistant Medical Officer. Salary £120 per annum, with board, lodging, and washing.

STOKE-ON-TRENT COUNTY BOROUGH.—Tuberculosis Medical Officer. Salary £350 per annum.

SURREY COUNTY COUNCIL.—Two Tuberculosis Medical Officers. Salaries £500 per annum.

THROAT HOSPITAL, Golden-square, W.—Resident House Surgeon. Salary £75 per annum, with board, residence, and laundry.

TOOTING BEC ASYLUM, Tooting, S.W.—Third Assistant Medical Officer, unmarried. Salary £150 per annum, with board, lodging, and washing.

WANDSWORTH UNION, ST. JAMES'S INFIRMARY, Ouseley-road, Upper Tooting, S.W.—Junior Assistant Medical Officer, unmarried. Salary at rate of £120 per annum, with board, lodging, and washing.

WEST-END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, PARALYSIS, AND EPILEPSY, 73, Welbeck-street, W.—Honorary Registrar. Also Resident House Physician for six months. Salary at rate of £50 per annum.

WEST LONDON HOSPITAL AND POST-GRADUATE COLLEGE, Hammersmith-road, W.—Clinical Assistants for three months.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of a vacancy as Certifying Surgeon under the Factory and Workshop Acts at Kilmakevoge, in the county of Kilkenny.

Births, Marriages, and Deaths.

BIRTHS.

BARNES.—On Sept. 9th, at Eye, Suffolk, the wife of Henry E. Barnes, M.D. Lond., of a son.

CORRY.—On Sept. 5th, at Liss, Hants, the wife of Harry Barrett Corry, B.A. Cantab., M.R.C.S., L.R.C.P., of twin daughters.

CREAN.—On Sept. 13th, at Queen-street, Mayfair, the wife of Thomas J. Crean, V.C., of a daughter.

WHITE.—On Sept. 4th, at Landour, N. India, the wife of Captain M. F. White, I.M.S., of a son.

WORTON.—On Sept. 16th, at Darley Dale, Hadley Wood, the wife of A. S. Worton, M.D., F.R.C.S., of a son.

MARRIAGES.

BAINES—RANSOME.—On Sept. 11th, at the Mission Church, Lytton, British Columbia, Mark Blakiston Baines, M.B. Oxon., to Violet Grace, only daughter of Mr. and Mrs. Stafford Ransome.

DEATHS.

RANKING.—On Sept. 11th, at Bexhill, in his 63rd year, John E. Ranking, M.D., F.R.C.P.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE TUTMONDA ESPERANTA KURACISTA ASOCIO (WORLD-WIDE ESPERANTIST PHYSICIANS' ASSOCIATION).

THE annual meeting of the Tutmonda Esperanta Kuracista Asocio ("T.E.K.A.") was held in the splendid hall of the Cracow Medical Society, Poland, from August 12th to 15th. In addition to many Polish Esperantist physicians, including Dr. Zamenhof, the founder of Esperanto; Professor Bujwid, of Cracow; and Dr. S. Mikolajski, of Lwow, Austro-Galicia, a number of foreigners were present, among others being Mr. Jameson Johnston, F.R.C.S.I., professor of surgery at the Royal College of Surgeons, Ireland; Dr. E. Mybs, of Altona (Germany); Dr. K. J. Shidlovskij, of Moscow; Dr. Arganova, of Saratov (Russia); Dr. Engler, of Vienna; Dr. A. Fischer, of Tiflis (Caucasus); Mr. C. J. Fuller, of Woolwich; Dr. Koposov, of Simbirsk (Russia); Dr. L. Lorand, of Budapest; Dr. de San Millan, of Madrid; and Dr. E. Sós, of Vienna. In consequence of the absence of the president, Professor Dr. H. Dor, of Lyons, Dr. Mybs was unanimously elected chairman of the meetings, Dr. Shidlovskij, vice-president, and Dr. W. Robin, of Warsaw, secretary. After telegrams regretting absence had been read, on the motion of the president, the members stood up in respect to the memory of three members of the association who had died since the last meeting—Dr. Robin, of Bucharest, Dr. A. Kunschert, of Wiesbaden, and Professor Emmert, of Berne. After the reports of the secretary (Dr. Rothschuh, of Aachen) and of the treasurer (Dr. George Johnston, of London) had been read and unanimously approved, a discussion took place over the proposed new rules for the association, and the committee elected at a special sitting, and consisting of Dr. L. Chybczinski, of Warsaw, Dr. Shidlovskij, of Moscow, and Dr. Mikolajski, of Lwow, was asked to decide before the new year what changes should be made in the plan proposed by Dr. Chybczinski. A long and thoughtful discussion concerning the business of the organisation, in which nearly all those present took part, followed. Dr. Chybczinski was then elected editor of the future organ of the association, and it was decided that in every country collaborators should be appointed to select material for the journal, and to send it monthly to the editor, so that a really international medical journal might be established. A special committee consisting of Professor Jameson Johnston, of Dublin, Dr. George Johnston, of London, and Dr. Rothschuh, of Aachen, was appointed at the second session to work for the inclusion of Esperanto among the official tongues at the forthcoming Seventeenth International Medical Congress in London. Purely scientific affairs occupied the remainder of the second and the whole of the third session. Papers were presented by Dr. Sós, of Vienna, on New Methods in Dentistry; by Dr. Dabrowicz, of Warsaw, on Salvarsan; by Dr. Fischer, of Tiflis, on Extra-uterine Pregnancy; and by Dr. Moser, of Switzerland, on Actinomycosis; and were thoroughly discussed by those present. A vote of thanks was passed to the Cracow Medical Society for granting the use of its hall for the meetings. The announcement that notwithstanding the great difficulties encountered the association was still increasing caused great satisfaction.

A STAB IN THE BACK.

To the Editor of THE LANCET.

SIR,—Two acquaintances, I may say friends, of mine went to a gala performance in London some little time ago, and were seated in the stalls. The chairs immediately behind them were claimed by two ladies of some importance, judging from their fashionable costumes. Hardly had these last taken their places when a hum of disapprobation, rising in pitch to a loud protest, attracted the attention of my friends, one of whom (I call him A) turned to inquire as to the cause of the hubbub He found both ladies with angry countenances divesting themselves of their preposterous hats and withdrawing therefrom the stilettos used for keeping such flower-gardens *in situ*. As the performance began the lady behind A, getting tired of holding in her hands the hat stiletto, thoughtlessly plunged the same, without reference to A's position in front of her, into the back of his chair. The result of this proceeding was that a full inch of steel entered A's spinal region, inflicting a wound which actually might have proved fatal. On leaving the theatre at once he consulted a surgeon in the neighbourhood, and received the assurance that with less good fortune he might not have been alive to tell the tale.

The above story sounds like a fable, but I can vouch for its truth.

I am, Sir, yours faithfully,

Worthing, Sept. 16th, 1912. I. D. CHEPMELL.

THE "MORGAGNI INSTITUTE."

"WHAT'S in a name?" asks Shakespeare. "Much every way," replies the President of the Court of Appeal at Venice, when condemning to 55 weeks of imprisonment, to a fine of 610 francs, and to a year's "vigilanza speciale" (police surveillance) one Rodolfo Polillo, of Turin, for having "created" an "Istituto di Morgagni" at the Piedmontese capital, of which he "qualified himself director, at the same time dubbing himself doctor of medicine," and, finally, for having announced the imminent publication of a guide entitled, "Salus," which was to contain biographical notices (*cenni biografici*) of those of the profession whom he had induced to subscribe to it in advance. The "doctor's" bait was the name of Morgagni, justly held in honour by all medical men, especially those who can claim him as a compatriot, and his victims, naturally enough, were the practitioners residing in those localities of the Alta Italia identified with Morgagni's "sphere of influence," localities mainly in the Venetian territory, Padua, for instance, as well as Venice itself, Vicenza, and such institutions as the Venetian section of the Red Cross with its *personnel*, the Spedale Marino (Marine Hospital), and the Congregazione di Carità. The "doctor's" winnings were considerable, and might have been more but for inquiries into his antecedents in Turin, where he had started on his swindling career at an earlier date and had thereby incurred the attentions of the police. His trial, conviction, and sentence (concludes an Italian correspondent) constitute the latest, and, it is to be hoped, the last, of a series of similar warnings to the public, professional and lay, to be on its guard against such persons as the self-styled director of the Morgagni Institute, who, in turn, has also had his admonition not to presume too much on the poet's induction—

How green is this grey world!

RECORDS OF LONGEVITY.

To the Editor of THE LANCET.

SIR,—Will you allow me to add a few names to the list of centenarians you have been publishing in your esteemed journal?

These persons have come to public notice at the occasion of the jubilee of the battle of Borodino, which took place in 1812, and their age has been ascertained by documents of unquestionable authenticity. 1. Akim Wentonewk, aged 122. He took part in the battle as a sergeant in the 53rd Volhynian Infantry Regiment; was wounded; now he is enjoying quite good health, and remembers very well the events of 100 years ago. 2. Peter Lapteff, aged 118. He witnessed the passage of Napoleon and his army through his native town, Sventsiany. 3. Gordey Gromoff, aged 112, saw the French army pass through the village of Krasnoye, government of Mogileff. 4. Maxim Platatchenkoff, aged 120, saw the arrival of captured French soldiers at Kirsanoff, government of Tamboff. This leads to the belief that people live longer in this country than in Western Europe.

I am, Sir, yours faithfully,

Moscow, August 28th–Sept. 10th, 1912. C. A. BONTER.

OLD LOMBARD STREET.

WE have received from Sir Joseph Causton and Sons a copy of a brochure on Old Lombard-street, produced by them for the Royal Insurance Company, Limited. It gives the history of the street from the earliest times. It seems likely that our original money-lenders, the Jews, who were banished in 1290, occupied dwellings in Lombard-street, though their exchange was in Old Jewry. From the time of Henry VIII. it has been continuously associated with national finance. Among those of special interest to the medical profession who have dwelt there are Sir Thomas Gresham, founder of the Gresham College, and Thomas Guy, founder of Guy's Hospital. Lombard-street was destroyed in the Great Fire of 1666. "Lloyd's" traces its origin to Lloyd's Coffee House in that street. In the early nineteenth century 10, Lombard-street was the General Post Office and mail coach office. The first London Directory was issued in Lombard-street in 1677 by Sam Lee, while the business of insurance, now so closely connected with the medical profession, has been associated with that street from its commencement. Besides reproductions of many old-time plates and maps, interesting woodcuts adorn the margins of the brochure, which is artistically printed and bound in stiff fawn-coloured paper.

THE FILING OF PAMPHLETS.

FOR those who have occasion to file pamphlets, reprints, and the like, pamphlet cases which can take their place along with books on the bookshelf are always useful. We have received from Messrs. Marlborough, Gould, and Co., Limited, 15, Dorset-street, Fleet-street, London, E.C., a specimen of their "Marlborough" pamphlet case, which is made in 33 distinct sizes from 7¾ × 5½ inches to 18 × 12 inches (inside measurement), selling at prices varying from 1s. to 4s. each. The cases have an outer book-like cover into which is slid the container for holding the pamphlets. They are stout and well made, and the container is easily withdrawn by a tab.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

WE shall publish this diary from time to time that our readers may have under their hands the dates of the approaching scientific Congresses. It is unnecessary to issue the lists of all these functions week by week, and we propose to make only such gatherings as will occur in the immediate future the subject of regular announcement. The following Congresses, Conferences, and Exhibitions are announced for September and October:—

May to October (London, Earl's Court).—Shakespeare's England.
Sept. 23rd–25th (Toulouse).—"Cold" Congress. (Cold Storage and Cryologic Methods.)
,, 23rd–28th (Washington, D.C.).—Fifteenth International Congress on Hygiene and Demography.
,, 24th–27th (Detroit).—Fourteenth Annual Meeting of the American Hospital Association.
,, 27th–29th (Hamburg).—Sixth Annual Meeting of the German Society of Specialists in Nerve Diseases.
,, 30th–Oct. 4th (London, Royal Horticultural Hall).—Eighth London Medical Exhibition.
September (Toronto).—Second Annual Meeting, Canadian Public Health Association.
,, or October (Perth, Western Australia).—(Three days.) Health Congress.
Oct. 3rd and 4th (Columbia, South Carolina).—National Conference on Pellagra.
,, 3rd–8th (Prague).—Sixth International Congress of Radiology and Medical Electrology.
,, 9th–12th (New York).—Electrical Exposition and Automobile Show.
,, 10th–12th (Paris).—Sixteenth Session of the French Association of Urology.
,, 10th–13th (Meran).—Seventh Austrian Congress of Balneologists.
,, 13th–16th (Paris).—Thirteenth French Congress of Medicine.
,, 16th–21st (Rome).—International Congress on the History of Art.
,, 17th–23rd (Paris).—First International Congress of Comparative Pathology.
,, 24th–27th (Rome).—Fourth International Congress of Physical Education.
,, 29th–Nov. 2nd (London, Royal Horticultural Hall).—Twenty-third Universal Cookery and Food Exhibition.

In 1913:—
(Easter week) (Berlin).—Fourth International Congress for Physiotherapy.
April 26th (Ghent) (opens).—International Exhibition.
Aug. 6th–12th.—(London).—Seventeenth International Congress of Medicine.
Sept. 22nd–28th (Milan).—Fourteenth International Anti-alcoholic Congress
September (Birmingham).—British Association.
(London).—Historical Medical Exhibition. (Organised by Mr. Henry S. Wellcome.)
(London).—International Historical Congress.

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye.

TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. Bishop Harman: Diseases of the Eye. Dr. Simson: Diseases of Women.

THURSDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. Bishop Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

LONDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LONDON), Clinical Theatre, London Hospital, Mile End-road, E.

MONDAY.—2.15 P.M., Demonstration in Clinical Medicine:—Dr. Wall: Diseases of the Pleura.

TUESDAY.—2.15 P.M., Demonstration in Clinical Medicine:—Dr. Grünbaum: Diseases giving rise to Morbid Renal Excretion.

WEDNESDAY.—2.15 P.M., Demonstration in Clinical Medicine:—Dr. Hutchison: Diseases of Children.

THURSDAY.—2.15 P.M., Demonstration in Clinical Medicine:—Dr. Thompson: Diseases of the Nervous System.

FRIDAY.—2.15 P.M., Demonstration in Clinical Medicine:—Dr. L. Smith: Diseases of the Heart.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (23rd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

TUESDAY (24th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.), Royal National Orthopædic (9.30 A.M. and 4 P.M.).

WEDNESDAY (25th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (26th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal National Orthopædic (9 A.M. and 3.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M. Aural and Ophthalmic), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M).

FRIDAY (27th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Royal National Orthopædic (3.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (28th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.) the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic (2 P.M.), Hospital operations are performed daily.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial Staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. I. of 1912, which was completed with the issue of June 29th, were given in THE LANCET of July 6th.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1912 are now ready. Bound in cloth, gilt lettered, price 16*s.*, carriage extra.

Cases for binding the half-year's numbers are also ready. Cloth, gilt lettered, price 2*s.*, by post 2*s.* 3*d.*

To be obtained on application to the Manager, accompanied by remittance.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will insure regularity in the despatch of their journals and an earlier delivery than the majority of Agents are able to effect.

THE COLONIAL AND FOREIGN EDITION (printed on thin paper) is published in time to catch the weekly Friday mails to all parts of the world.

The rates of subscription, post free from THE LANCET Offices, have been reduced, and are now as follows:—

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 1 0	One Year	£1 5 0
Six Months	0 12 6	Six Months	0 14 0
Three Months	0 6 6	Three Months	0 7 0

(The rate for the United Kingdom will apply also to Medical Subordinates in India whose rates of pay, including allowances, is less than Rs.50 per month.)

Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London County and Westminster Bank, Covent Garden Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C.

TO COLONIAL AND FOREIGN SUBSCRIBERS.

SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied.

SOLE AGENTS FOR AMERICA—Messrs. WILLIAM WOOD AND CO., 51, Fifth Avenue, New York, U.S.A.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Sept. 18th, 1912.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Sept. 12	30·27	N.E.	...	100	62	48	53	56	Cloudy
,, 13	30·44	E.	...	72	60	50	51	54	Overcast
,, 14	30·28	N.W.	...	95	63	50	53	55	Overcast
,, 15	30·30	N.	...	82	61	55	56	60	Dull
,, 16	30·22	N.	...	72	63	55	57	59	Misty
,, 17	30·26	N.	...	70	60	55	56	58	Dull
,, 18	30·39	N.	...	97	62	48	52	54	Overcast

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